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Service Bulletin

U.S. FOREST SERVICE

(Contents Confidential)

Vol. XI. No. 1 WASHINGTON, D. C. JANUARY 3, 1927.

IS THE PACIFIC COAST BETRAYED BY "FOREST FIRE" PUBLICITY?

By Howard R. Flint, D. l.

The following statement by Mr. Flint, appeared in the West Coast Lumberman for November 15, 1926. It was prompted by the publication in that magazine on September 15 of a statement by Frank R. Barns, of Portland, Oregon, in which he said that there is too much exaggerated and misleading forest fire publicity-- publicity which, in his opinion, works untold harm to the Pacific Coast. Mr. Barns in his statement declared that the statistics on forest fires compiled by the Forest Service do not present a true picture in that all outdoor fires are classified as forest fires. He urged that such figures when put out for publication should differentiate between the different classes of fires so that the public would not gain the impression that every smoke on the horizon during the summer months means a forest fire--Editor.

Like many other "ardent advocates" who use quotations to support an argument, Mr. Barnes unintentionally, let us hope, uses alone two brief sentences from the United States Forest Service instructions for reporting fires, without quoting the qualifying matter which goes with them and without which the meaning of the two lone sentences may be very much misconstrued. He unfortunately neglects to point out for the lay reader that the headings "Timber" and "Forest Lands" are broad ones used to distinguish vegetative cover and soil types capable of producing forest tree growth from cover and lands naturally adapted only to the production of grass, sagebrush, or growth other than trees. He innocently neglects to explain that on the official report forms, the caption "Timber" is flanked by one "Nontimbered" and is divided into subcaptions "Mature or Merchantable Timber," "Protection Forest," and "Reproduction or Young Growth;" that the acreage of each of these subtypes is reported and evaluated separately; and that the quantity of merchantable timber destroyed is also stated separately in feet, board measure.

It may be all too true that writers in newspapers and popular magazines fail, just as Mr. Barnes has done, to point out all of the subcaptions and finer distinctions of the statistical data which they quote. That is a very human failing with which all thoughtful readers are quite familiar. Probably few are misled by it. Is it true, is it even probable, as Mr. Barns asserts, that the astute business heads of large insurance companies shape their policy and base their decisions, without investigation, on scarehead newspaper reports and "shopworn and flyspecked" magazine statistics? If that is true, probably timber owners are as well off without insurance in any company directed by that sort of management.

The truth is that forest-fire losses have usually in the past been more subject to minimization than to exaggeration in the statistics published by responsible public agencies. Between such agencies and the irresponsible popular writers Mr. Barns makes no distinction. What the reports fail to indicate is that there is a very real damage to soil in repeated burning, a value which foresters do not yet know how fairly to express in dollars and cents and which they invariably omit entirely. The reports fail to indicate that brush on exposed sites is often a necessary nurse crop and soil builder before valuable tree species can become established. Its value is indeterminate and has usually been omitted entirely. Finally, it is not brought out in the reports that before it can become mechantable timber, every tree must first pass successively through the seeding, sapling, and pole stages of development. The man must first be a child. If, on any given area, the young growth is repeatedly destroyed by fire, that area will not bear merchantable timber. The mere circumstance that the young growth has no sale value in itself does not in the least lesson its importance from the standpoint of keeping acres productive and providing a future timber supply. The seedling an inch high or the soil and cover conditions which makes it possible for such a seedling to develop is quite as essential to future lumber production as the mature tree will be--all are indispensable. Losses of this kind are, to the public, real losses, whether or not they can be accurately evaluated.

It is doubtful if any forester or forestry agency will object to the four subdivisions which Mr. Barns outlines in his article. It seems rather strange that Mr. Barns is unaware of the fact that Forest Service reports have for several years, including 1924, which he mentions specifically, made these four distinctions in even greater refinement than Mr. Barns suggests. If reporters and popular writers fail to heed these distinctions, then the fault--if there is any--is with them rather than with the statistical agencies, and it scarcely seems reasonable for Mr. Barns to include the latter in his arraignment.

After all, has anything been presented that would indicate that the appraisers, the bankers, and the insurance directors are so gullible, so easily hoodwinked, so unthinking as to have been grossly deceived about their business by the statisticians or by popular writers? Frankly, is there any real evidence shown or to be shown in support of the scare-head assertion that "untold harm to the Pacific Coast" has resulted from forest fire publicity, unless it be that the harm is "untold" because there is little or nothing to tell? Of course, publicity is a "two faced" ax and who wields it must beware of self-inflicted injury. Too often the ax is dull on both edges and fails to cut much wood. In spite of all the publicity, man-caused fires are still too common on the Pacific Coast and they doubtless do far more real damage to the region than any lack of either capital or fire insurance. If, through publicity, even though some of it be a bit uncontrolled or exaggerated, we can prevent the fires, be they forest, brush, or grass, let's first do that, and the reason for the undesirable publicity and the fears of credulous capitalists will promptly vanish over the smokeless horizon.

III - PRIVATE PAPERS OF P. PALUSTRIS.

Dr. John D. Recreation,
Pomona, Mass.

Dear Doctor John:

On my recent trip south I visited four small forests created under Section 9 of the Clarke-McNary Act. I want to tell you about them primarily because they are a new animal, something undreamed of by us during the earlier years of the Forest Service. These forests were carved out of military reservations under the authority of the Section referred to.

The first one visited was the Jackson National Forest, an area of 20,225 acres, and then the Benning National Forest, with an area of 78,560 acres, the McClellan National Forest with an area of 15,350 acres, and finally the Knox National Forest, with an area of 22,650 acres. Let us begin with the Jackson. It lies directly east of Columbia, South Carolina, was named after Andy, and was the site of Camp Jackson during the World War. It is reached by paved highway running to and past the reservation with a branch extending part way into the reservation. The nearest point of the Forest is within four miles of the town. The War Department made no economic error when it wrested these lands from agricultural use. They are Norfolk sands of the sand hill type, having upon the whole unquestionably a negative value for agriculture. There is probably hardly an acre within the reservation that has not at some time been cleared for cultivation within the last 25 years. But the soil soon loses its fertility, and with a few crops, unless heavily fertilized, the yield does not repay cultivation. When the War Department acquired this tract only the better and more level lands were being farmed. The forest is now coming back in splendid shape under fire protection. We have a splendid market for wood and will be able to practice some real forestry. The fuelwood market always demands a certain percentage of soft wood. This will enable us to cut into our young stands of pine, which are now making unsatisfactory growth because suppressed through the density of the stand, and thin them out. The effect of such treatment upon the remaining stand will be almost magical. The direction of such improvement cutting will, however, require a real forester who understands his business.

But the Benning National Forest was the prize package. In the first place it is of much larger area and in the second place I believe has a little better soil both for agriculture and for timber production. The Forest has not been exploited so completely and probably 25 per cent of the area contains stands of timber from which merchantable material might well be removed to silvicultural adavntage. Twenty-five per cent of the area contains young growth sufficient for a normal stand, another 25 per cent has some young forest growth on it but might be improved as to species and distribution, while the remaining 25 per cent would have to be planted. I guess I better say that these figures apply to about 75,000 acres. The remainder, or between three and four thousand acres, is agricultural land.

The agricultural land and its occupants on the Benning are a pippin of a problem. When the Forest was created by proclamation a little over a year ago we inherited from the War Department 121 resident tenants with their wives, families, and dispositions. Most of these tenants were plain southern darkies not "cullud gemmen" such as we have in Washington, but the plantation type, improvident, dependent, happy-go-lucky, irresponsible. We found in effect what amounted substantially to a system of peonage. Usually the land was leased by some enterprising white man, who in turn sub-leased to the darkies on a crop-sharing basis, advanced money for seed, fertilizer, and food while the darkey did the work. The white man kept the books, sold all supplies to the tenant, and in turn purchased his crop of corn and cotton, deducted his rent first, then from the darkey's share deducted the cash advance made, with a good high rate of interest. The darkey who was not deeper in debt at the end of the season than he was in the beginning might consider himself reasonably fortunate. Well, we decided to break up that system and to do so drastic action was necessary. The District laid down the following rules:

(1) No lease to anybody excepting the man who cultivates the crop.

(2) No sub-leasing on crop-share basis.

(3) Each tenant limited to what he can actually cultivate, 30 acres per man and team. A tenant having a son and additional mules can get a 2-team lease of 60 acres.

(4) Help may be hired only to meet emergencies.

(5) Leases will be made only to

previous occupants. No new tenants taken in.

This resulted in quite a "scatteration." Unfortunately under our regulations we had to require rental payments in advance, which in cash amounted to from $1.50 for the poorest soils to $3.00 an acre for the best soils, only the actual crop acreage being counted. Well, do you know, those poor creatures had an awful time rustling the cash rent money in advance. Many of them left the reservation and I am afraid that most of the others had to make some combination with some local merchant very similar to the system we were trying to destroy. We now have 67 tenants, each cropping from 30 to 60 acres or more, or a total of a little over 1800 acres actually under plow. I think that we have found here a peculiarly effective economic instrument to bring about a real thorough scientific restoration of the Forest. These agricultural lands, although not particularly fertile, are in keen demand because they are high dry uplands, free from boll weevil infestation. They have been cleared and have substantial farm improvements on them. Such clearing and improvement represent the investment of human labor that represents a certain economic force. This economic force belongs to the Government. The reservations were created under a form of law which provides that they are to be "for the production of timber". It seems to me that as an instrument "for the production of timber" the economic force represented by these agricultural lands could be best employed not by excluding them from cultivation and allowing them to reforest as old fields in the South quite readily do, but by utilizing their economic power to bring about the increased productivity of the other 75,000 acres in the reservation. I suppose that fully as much cleared agricultural land will remain fallow this season as we will have under cultivation.

I find I can't possibly finish this particular topic in the time at my disposal. Therefore au revoir till another time.

Yours for sound economics,
P. Palustris.

(This is the third of a series of six letters. The next will appear in an early issue.
EDITOR).

GOVERNMENT LOGGING

By Aldo Leopold,
Forest Products Laboratory

When Sherman and Neff cross quarterstaves on the subject of Government logging, it is difficult for bystanders to keep entirely silent.

Neff says: "All other large timber growers transport their wares to market; why shouldn't we?

Sherman says: "Logging is not like timber growing and protection. It involves nothing which the Government can always do better than the private citizen. We should have no 'Government in business' unless there is no other way of getting the business done."

I am not usually accused of any incurable leaning toward the "happy medium", but in this case it seems to me that the happy medium is our proper path. I do not see the necessity for Government logging, but I do see the necessity for freer use of our bargaining power as stumpage owners to the end that private logging may accomplish public purposes.

I likewise see necessity of freer recognition of the fact that our timber sales are not analogous to private commercial transactions and are not to be judged by the same criteria.

For example: Much sleep is lost over the fact that we "carry" species with negative stumpage values out of our white pine, and thereby lose some cash receipts. Why worry, provided our marking is actually delivering white pine reproduction and actually getting the bulk of the sound material into use? The private operator chooses the cash; we choose the clean-up. Each is right. In this case it is our marking, not our sale policy, that we should worry about. Neff does not make it clear that Government logging would either teach us better marking or enable us to practice it.

Neff cites the fact that D-1 is forcing the construction of railroads in order to avoid the $6 degrade which occurs in river driving. I wonder if all foresters appreciate the significance of this. It means we are deliberately shaping our management plan to give favorable conditions of utilization ,and using our bargaining power as stumpage owners to put the reshaped plan into effect. How different from the old way of writing a management plan first, and then calling for miracle-workers to cure the resulting wastes!

In certain places, however, we own such a small proportion of the stumpage that we have no bargaining power. In such places a Government railroad seems the only way out. In other words the Government, in order to keep out of the logging business, may sometimes have to go into the building of transportation facilities. We had to do it in roads; why not railroads? We won't have to operate, - only build.

Is it possibly the case that part of the utilization and protection problem which Neff is worrying about is aggravated by logging too high up the slopes? Utilization will always be worse on inaccessible ground. Wouldn't a dollar of cash expenditure raise more and better timber in the Inland Empire with less fire loss if used for intensive handling of the better lower sites rather than the less intensive handling of the whole watershed? And wouldn't such concentration of forestry on the better sites mean cheaper logging, higher stumpage, and a less porportion of burnable area?

These are, of course, mere fragments of the questions Neff and Sherman raised. In the discussion of those questions, however, I can see three new things we will have to recognize:

(1) The Forest Service should be primarily concerned with getting the maximum productivity of forest land and maximum service from its products, rather than with the maximum cash profits from their removal. It cannot get both.

(2) To keep out of Government logging will require the intensive regulation, by use of the bargaining power, of private logging. Occasionally it will require Government railroad-building.

(3) The place to start good utilization is in the management plan itself.

PITLESS FIRE TOOL BOXES

By J. W. Emerson, Montezuma

I am in favor of progressive ideas, i. e. trail markers put up with copper nails, etc. But why hasn't some one before this date suggested a pitless fire tool box? The pit of the standard box is about two feet square by three feet deep. By pit I mean that part of the box below the door, into which one has to dive head first if a pencil or other small tool is dropped.

Recently while inspecting a box I had occasion to reach for a car seal, so rolled up a small log and while standing on tiptoe and endeavoring to reach it, the log rolled away from the box. I found myself in the same position as a boy described by James Whitcomb Riley in one of his sort poems, -- "----, and I jacknifed there to stay. They had to come and get me out or I'd have passed away."

In my case no one came to get me out. In the first place, some of our tool boxes are located in rather remote places. Second, no part of my body was visible to the passerby. Even my horse, who was tied hard and fast facing the back of the box, failed to see the jack-in-the-box stuff I did.

So after a few minutes deliberation, I managed to come out feet first. En route out, (I had quite a little time for thought) I remembered reading an article in The American Legion Monthly, "How Old Will You Be At Fifty." The idea as I remembered, called for a moderate amount of physical ectivity every day. So I took mine for that day, and don't know whether my GET AWAY time was within the established standard, as I forgot to look at my watch.

On November 2, 1926, I am going to

vote.

23.

An act to provide for the Construction nad Maintenance of Pitless Fire Tool Boxes	Yes.	X
	No.	

BY-PRODUCTS

By E. N. Munns, Washington

It is probably worth while to consider some of the by-products of forest investigations and particularly of research, as distinct from the answers to specific questions. There is no question byt that the human mind and human character are deeply influenced by the environment in which they work and develop. What are some of the outstanding factors which must characterize the individual who really gets into the forest research game? What are some of the characteristics that we might normally expect to see develop as a "by-product" of research?

Some of the more obvious features to be expected are: first, a profound loyalty to truth; second, an enthusiasm and zeal which we can conceive as only associated with a definiteness of purpose or objective. This involves, of course, a persistence and diligence not circumscribed by the limitation of a four six, or an eight-hour day.

Then there is the important factor of cheerfulness, of hope, of optimism. The grouch lacks the first prerequisite for entering upon forest research, and a man with chronic dyspepsia is hopeless unless perchance he takes to research as a cure. The old alchemists of a bygone age believed in certain fluids they called "humors" which they believed were secreted within the body somehow and which influenced the temperament and health. These old chemists and physiologists may not have been so far wrong at that. Indeed, I sometimes wonder if there is not some complicated and unrecognized chemical compound that is a direct product of these more or less psychological activitites. Vitamines are said to inhabit various articles of diet, and these have as yet been unseen, analyzed, or counted. Can there not also be vitamines of the spirit no less obscure, but no less hidden in their effect upon our physical and mental status?

I do not advocate here any cult, "ist," or "ism," Nor do I mean to imply that all spiritual forces can be referred to the mere mechanism of matter. I do, however, recommend to all forest officers, the health-giving possibilities of research, with its exhilarating activities and definiteness of purpose as having vastly greater possibilities towards a rejuvenated mind and body than all the medicinal waters of Hot Springs or a winter in Florida.

Greatly as research is needed for advancing and analyzing the boundaries of forest knowledge, whether it be in road building or fire line construction, may we not need also for our soul's own good as well as that of our organization, these by-products of truth, of service, of altruism, definiteness of purpose, of faithfulness, and of hope and good cheer?

ON THE LEVEL

For those who can stand its rigors, the winter climate of Southern California is exhilarating, but be sure to take your skis, says the San Diego Chamber of Commerce, in warnings broadcasted all over the United States to counteract exaggerated accounts of the dehumidified, dehydrated, sunkist climate of Southern California. This is borne out by the following telegram from the Supervisor of the Cleveland, relayed here by Lew Barrett:

"Worst storm in fifty years Laguna, seven feet snow, four feet on level, forty special use cabins entirely wrecked, estimated damage fifty thousand, Elliott and A. McGowan of San Diego Sun there, sent message out last night almost frozen and exhausted on arrival there yesterday."

Barrett adds:

"Now, this kind of a storm would have had no effect whatever on the improvements built by our permittees at Huntington lake, along the Placerville-Tahoe road, and anywhere in Northern California but the Southern Californians apparently have not learned that there are times when a knocked-down bungalow will not stand up even in the mountains of Southern California."

MORE ABOUT GERMAN FORESTRY

Felix von Bethmann-Hollweg, so of the former German chancellor was a visitor in the Santa Fe Forest office recently. He states that the scheme of management of his forest estate is controlled from a profit yielding viewpoint. The salable value of his land is about $60.00 per acre and its annual crop yields about 2½ to 3% on the investments. His wood utilization is closer than ours, but the lumber utilization is less. The silvicultural practice is clear cutting and planting with scotch pine. Natural reproduction is not profitable as it is too slow to secure full stocking. Selective cutting is not profitable as it would spread out the cut too much. Timber purchasers demand that the cut be as concentrated as possible. In the beginning a 60 year rotation was practical to produce mine timbers, but which did not turn out sufficiently profitable. An 80 year rotation was used and at present it is planned to put a 100 year into effect which matches the highest financial returns along with the peak of wood increment. Yield is falling off to some extent by the continuous production of pure scotch pine. The needles are small and do not supply sufficient humus. He is planning to plant beech in mixture to build up the soil. All planting is spaced sufficiently close to produce clear lengths. All tillable areas are cultivativated for dry years. The cut is regulated on an area basis. Each acre yields about 26,000 bd. ft. for the cut An additional annual cut of minor products, covering the forest for thinnings, diseased trees, etc., yields about 1,200 M. converted into bd. ft. - District 3.

WHY THE OLD COW IS CALLED "BOSSY"

"Bossy" is commonly regarded as an affectionate nickname for the family cow and is the appellation ordinarily used to summon the "old girl" from the far end of the pasture or out of the brush. Rather than being a nickname, however, "bossy" is used by right of a strictly scientific assignment since it apparently comes from the generic portion of the scientific name for domestic cattle, BOS TAURUS. Moreover, bovine is connected with the family name BOVIDAE. It is not good form, however, to make this lengthy explanation to the permittee when you are instructing him to keep his cattle off the high range in the spring or the grocer when purchasing a pound of butter. - District 4.

This etymologist is on the right trail, but "Boss" and "Bossy" are probably much older than generic scientific names. "Boss" probably comes straight down through the ages by unbroken popular descent from the Greek Bos,-just as Sooey-sooey used by our most practiced hog-callers probably comes in similar fashion from the Latin Sus, pig. So when you call the family cow or pig you are probably speaking Simon-pure classical tongues!)

VARIEGATED

By E. J. Fenby, Rainier

The forest uses become more varied each year. This indicates a greater usefulness to the forest communities and general public and incidentally adds to the interest (and volume) of the work. Novelties on the Rainier include:

Harvesting mushrooms for the general market by Seattle Japanese.

Gathering the leaves of sword-leaf fern plants for decorative purposes. These are sold commercially to large florist houses at 90¢ per thousand leaves, in bundles of 50. Query, what should the stumpage price be?

The State is constructing a food fish hatchery on the Cedar Fork of the Cowlitz at an outlay of $30,000. This is the result of a tryout this spring to obtain eggs of the early run of Chinook salman. If 750,000 could be had, it would warrant erecting a plant. To the surprise of every one over four million eggs were obtained and then the traps had to be opened because of the lack of facilities to care for more. The plant will consist of a modern dwelling on concrete foundation and fireplace, a hatchery 90' x 45' and rearing ponds.

A boys' school was conducted in the Forest. The youngsters caused much apprehension among nearby sheepmen who were fearful of pile-ups whenever the boys came in sight dashing about all over the landscape.

Last, but not least, is an application for a Methodist camp-meeting grounds to accommodate 1,500 churchmen.

GOVERNMENT OWNED HORSES PAY

There has been a doubt in the minds of many, particularly the Inyo force, as to whether or not it pays to keep Government owned stock in preference to hiring them from commercial packers for construction and maintenance projects and other uses. The following has been assembled from records kept for the 1926 season on the Mt. Whitney District.

For the fiscal year 1926, it cost for feed, equipment, first cost, etc., including depreciation of stock values, approximately $60 per head. The use we made of the three head of Government animals totals 160 horse days, not including odd jobs about the ranger stations. Figuring at commercial rates, $2 per head, makes a total of $320 earned for the season, or a net saving of $140. It is estimated that for the period 1924 to 1926, inclusive, we have saved, figuring conservatively, $420. An estimated saving of $75 yearly in packers' wages makes a net total of $570.

Where work averages 30 horse days or better a year per animal it pays to keep Government owned stock.

CORRECTION

Hutchinson's prize-winning ad, recently reproduced in the Bulletin, was badly mangled by failure to insert asterisks or dashes in front of the word SPRINGS to indicate our omission of the trade name of the special brand being advertised.

LOOKOUT TOWER

Those who deal with publicity - propaganda - words, and who sometimes get scoffed at by those who never handle anything more ethereal than a peavy or a single-jack, should be heartened by a study recently made by the Extension Service of the Department. They went directly to 424 alfalfa growers in Wisconsin and found out how many of them were reached by different educational methods on alfalfa production and the comparative effectiveness of different methods in influencing those reached. The study gives a high degree of effectiveness for the printed word.

As far as percentage of people REACHED is concerned, "institutes" (gatherings for lectures, etc.) held the lead, followed by news stories, bulletins, circular letters, general meetings and demonstrations. Exhibits were near the bottom. For percentage of people who were both REACHED and INFLUENCED by a given method, institutes again hold the lead, followed by demonstrations, news stories, farm visits, general meetings, bulletins, and circular letters. Exhibits had the least influence in this particular field. Dr. C. B. Smith, Chief of Extension, comments as follows: "My reaction is not that we need less demonstrations but that we should use the printed word much MORE WIDELY. Let us get out more - much more - printed matter, including bulletins, circulars, news articles, circular letters, and posters telling the story of the demonstration. Where ten see, hundreds may hear and thousands may read." - W. S.

WHY THE HURRY?

"In the old days it didn't bother a man much if he missed one stagecoach even if it would be two or three days before the next one came along. To-day you'll hear the same sort of citizen bawl like a bee-stung bear if he misses the first compartment in a revolving door."

Service Bulletin

U.S. FOREST SERVICE

(Contents Confidential)

Vol. XI. No. 2 WASHINGTON, D. C. JANUARY 10, 1927.

WINGS FOR FIREMEN - A LOOK AHEAD

By Carl Siria, Cabinet

Undoubtedly the feasibility of using aeroplanes more extensively in fire suppression work has occurred to other Forest officers who have a better knowledge of aviation than myself. I realize that there are probably many obstacles in the way of the plan here advocated that would make its adoption questionable. However, I believe that a plan somewhat along this line offers a logical solution of a large part of our lightning fire problems.

Before this season I had very little knowledge as to what could be expected of the aeroplane. I was fortunate this season in that I had an opportunity to take an aeroplane trip over the Forest with Pilot Henry, and to ask him many questions about the possibilities of the aeroplane in our work. I have also discussed the matter with Pilot Nick Mamer.

I have often thought that an aeroplane assigned to this Forest would go a long way towards solving our lightning fire problem, particularly in the inaccessible regions, if landing fields could be constructed at a reasonable cost. With this idea in mind I have attempted during the past season to locate as many places as possible where fields could be built at a reasonable cost. At first this seems much like searching for a needle in a haystack but a thorough analysis brings out the surprising fact that many such places exist. With the help of the District Rangers and others of the Cabinet organization 74 places have been selected where fields can constructed at a reasonable cost, probably be not averaging over $500 per field. The majority of them are located on the main divides. Many places are found along these divides where there is sufficient level land for a field of the required length and from 3 to 5 chains in width. Many of these spots are burned clean or do not contain any considerable amount of tree growth and could be made into landing fields at small cost. Others would have to be cleared of standing or down timber and the ground worked over, Natural meadows and cultivated fields offer other opportunities for landings at little cost. The cost of maintaining the fields once they are constructed would, I believe, be small.

The plane would be stationed at Supervisors' headquarters, or could be stationed at any of the Ranger District headquarters or landing fields where telephone communication has been established. With the plane would be from four to six firemen equipped with the present standard outfit or if found advisable a reconstructed outfit suitable for this work. They would be intensively trained for this particular job. These men could be kept busy on improvement work during safe periods at most any point on the Forest where a landing field was located. When a fire was reported at any point on the Forest it would first be determined whether the fire could be reached more easily by plane or by other means. If it could be reached as quickly by foot, the use of auto, or other transportation, the plane would not be used and the fire would ordinarily be handled by the regular protective organization on the district where it occurred. If, however, it was decided that the fire could be reached more quickly from some landing field the plane would take off with one or two firemen. They would fly over the fire, and after getting its exact location and picking out the best route to the fire would fly to the landing field from which the fire would be most accessible. After landing the firemen, the plane would return to headquarters and report. The firemen would have the advantage of downhill going in most cases and the travel time to practically all fires occurring in inaccessible country would be cut to the minimum, since no two fields on the Forest would be over one hour's aeroplane travel time apart, and many of them could be reached within a few minutes. Additional help could be supplied the firemen in a short while in case they could not handle the fire.

Should one part of the forest have a large number of lightning fires and other parts escape, which often happens, it would be possible to transport firemen from these parts to the danger zone. While the fires are small, the entire forest organization would be available for suppression work on most any portion of the Forest, limited only by the capacity of the plane to transport the men. It might be possible in case of serious emergency to transport men from adjoining Forests to these inaccessible regions by the use of the local plane and possibly other planes located elsewhere. The plane would of course be available for patrol duty immediately after lightning storms or other periods of haze or smoke.

Where it was necessary to employ new men for lookouts who were not familiar with the country, a trip in the plane over their territory at the beginning of the season should be of some help to them. Firemen could also take advantage of the plane in order to become quickly familiar with their districts.

It seems to me that a plane lighter and of more modern type than those used this summer would be better for this work. Such planes can now be purchased for a very moderate price with the probability of even lower prices in the near future.

Complete development of this system would include a large number of way trails radiating from the landing fields and permanent telephone communication at each field. It would also mean at least one plane for each fire forest and a general shop or headquarters located at some central point which would be equipped for maintenance work on the planes and which would also be able to send relief planes or pilots in cases of accidents or when an additional plane or two was necessary for a fire emergency on a particular Forest.

This plan would not necessarily increase the number of protection men on the Forest, since it would be possible to withdraw a few of the positions that we now occupy. It would, I believe, increase the efficiency of the organization in a degree equal to or greater than the cost of the project.

CONTRIBUTION TO THE NATURAL HISTORY OF THE LUMBERJACK

By Robert Marshall, Northern Rocky Mt. Experiment Station

This is the age of science, and everything succumbs to it. From electrons to elephants, from submarines to stellar striations, from the most abstract to the most applicable, knowledge is being systematically acquired. There are few fields, however, which have been influenced less by scientific method than manners and customs. The knowledge of the social habits of ourselves, as well as of our ancestors of three hundred or three thousand years ago, is based largely on personal opinion. Hamlet and Habakuk may be literary monuments, but we have no means of knowing whether the characters which they portray were typical of their day, or merely the product of some inaccurate author's mind.

Much has been written about the lumberjack, mostly bunk. Furthermore, a great deal that has been said on this subject is exceedingly indefinite. We often hear the expression: "He guzzles his food as fast as a lumberjack." But how fast is that? If the question is not answered now, while the present-day ax wielder and saw duller is still here to be analyzed, its solution may soon become as impossible as the famous question of the latenineties, "How old is Anne?" And so, as the proper scientific report says, the present study was undertaken. It is realized that the data gathered are not sufficient for definite conclusions, but the tentative results of this study being submitted in the hope of stimilating others to join in it.

The question of primary interest, as intimated above, is: how fast does the lumberjack eat? To answer this, 40 lumberjacks in a North Idaho camp were timed at every meal for 10 days. Not only the first bolter and the last Fletcherizer were clocked, but also the average man -- the twentieth fellow to leave the table in this sample of 40. As a result, the following figures were obtained:

	Minutes Required for Eating by the		
Meal	Fastest Man	Average Man	Slowest Man
Breakfast	6	10	15
Lunch	8	12	16
Supper	8	12	17
Daily Total	22	34	48

A natural question which arises after persuing these figures is, whether the slow eaters are habitual laggards, or whether it is more or less a matter of chance who comes out last in this mad dash for sustenance. At every meal the last three men to stack their dishes were noted. At the end of 10 days, it was found that eight men out of the 40 were among the final three to leave the table 82 per cent of the time. In other words, you could pick one fifth of the men in camp, and five times in six the last three would be composed of them.

Much has been said about the lumberjack's crude table manners. It seems probable that an exaggerated opinion is prevalent on this subject, because the average person notes the most glaring habits more than the common ones. As a matter of fact, it was found that only 60 per cent of the eaters were two-tool men; that is, used both knife and fork to lift the food toward their mouths. As for genuine sword swallowers, only 13 per cent actually inserted the knife into the oral cavity. But 40 per cent were habitual bread spearers, or in other words, commonly utilized their forks to harpoon the staff of life. Of course, on occasion, almost everyone resorted to this expedient, but only two in five were regularly addicted to it.

It is fitting, before concluding this paper to investigate certain aspects of the lumberjack's language. For this purpose a tally was kept, during 15 minutes of a conversation between three old snuff chewers, of all words used which would be barred in so-called polite society. During this quarter-hour 129 such words were spoken, 69 profane, 45 of sexual import, and 15 excretory. God led all the rest, but good, old-fashioned damn ran a close second. Third place was taken by ________. But I guess I'd better stop lest any Watch-and Warder should peer between these covers. Anyone interested can write the author for more specific details.

"De-Brushing" Tractors in the French Landes

By Ward Shepard, Washington.

Show's revolutionary experiments in building fire lines with tractors have an interesting counterpart in the maritime pine belt of the French Landes, region of the famous man-made forests that reclaimed millions of acres of sand and material swamps. Numerous fire-breaks are necessary in these highly inflammable forests, but the cost was prohibitive until a few years ago the tractor was brought into play. Now the tractor is used not only for clearing fire lines but for clearing the forest at large of brush (an expensive undertaking to our point of view but one that will commend itself to all reconnaissance crews). The following account is taken from Les Landes de Gascogne by Larroquette.

"The chief fuel for fire is the underbrush. Blackberry bushes, heather, furze, and briars in dense thickets interfere with the work of turpentining and retard the sprouting of seed. But brushing out was difficult, costly, and could not be replaced by burning even in the winter. Today the question is on the way to being solved thanks to the use of the 'tank' - the tractor which, after having been one of the artisans of victory, must now safeguard and enrich the forests of the Landes. The apparatus in use is simple, being composed of a gasoline tractor replacing animal traction and a train of metal rollers that flatten the underbrush down and chop it up. These land-clearers, equipped with a disk-harrow, by turning up the soil help in the preparation and seeding of the land. Demonstrations were made at Soustons in 1922 with an expense for labor and sowing of 38 francs per hectare. (Based on various experiments conducted since 1920) The total cost per hectare has not exceeded 70 francs and a tractor can de-brush 300 hectares a year. Fordson tractors and Venable and Tixier debrushing machines were used. The apparatus is open to improvement and studies are being made of means of utilizing it to pull out stumps and trunks of pines that interfere with sowing."

The author suggests that the fire lines, after being cleared, could be planted to agaves and aloes, which produce fibers and alcohol, Barbary figs, which are an incombustible species, and flax. The uprooted brush is used for fuel and for the manufacture of alcohol, dyes, etc.

ABOUT BUCKBOARDS, BLAZES AND BADGES

By J. H. Huffman, Columbia.

One Saturday morning in the early part of October, some loud laughing came from the vicinity of the "barn lot" at the Hamlock Ranger Station, and someone was heard to remark: "What are you fellows going to do with that old rig?" Well, what were they going to do with it? They were going to use it on road maintenance in drain logs, to haul their plow, shovels, axes, and other whatnots used in repairing roads, and they were not going to leave the road all cut with wheel tracks when they got through, and the old "rig" was nothing but a buckboard.

The thought has occurred to me - how many old buckboards are there now reposing on top of a wagon shed or tool house that should be down out of there, painted up and put to work? Now, isn't there a chance that we are rushing along through life too fast and trying to use the "tin Lizzie" when we should put the harness on old Tom and Jerry, hitch them up to the buckboard, and throwing in our saddles, some feed and other equipment we want to take with us, drive to the end of the road, then park the old "chariot" under a bush and hit those far off corners of the district that haven't been visited as they should have been since the advent of the "road program" and "tin Lizzie"?

Along with the old buckboard, a great many other distinctive marks of the Forest Service have been slowly forgotten and shoved into the past through the rush of production of large quantities of work. One of these that is particularly noticeable in trail work is the Forest Service blaze. Say, fellows, just step up to your protective force and improvement men and ask them one at a time, "What is a Forest Service blaze?" and you will be surprised with the answers you will get.

Also, there is the wearing of the badge, both large and small. Just keep watch during the summer season when everything is moving along in a hurry and notice how many men are wearing no badge at all or, if they have one on, it will be one about the size of a dime parked on the corner of a shirt pocket flap.

Are we leaving some of the old traditions behind in the rush of time, or are we taking too much for granted? I would be glad to hear what some of the other brothers of the "bushes" have to say on the subject.

FLYING SEED-TREES

From a letter from Mrs. Dorothy Striegel, Culver city, California:

"There are great wastes of land through the West that could be planted by airplane. Acorn and seed could be dropped over miles of country as they drop literature over cities and as they plant acres of wheat fields in some sections.

"It is soon time for the rainy season along the southern part of California and also many other places the seeds would germinate rapidly and grow. Much of the young trees would be eaten by wild animals but a great per cent would grow and mature even in the hot south lands.

"Mr. Burbank tried the idea at my suggestion about 5 years ago with flower seeds and as a result the mountain sides were covered with a variety of beautiful flowers. If the flower seeds grew why wouldn't acorn and hickory nuts and other trees grow. The forest fires have been a problem these last years and it seems some method must be employed to plant more trees and it would not cost much to experiment over any section to see the results of the idea."

From Washington Office reply:

"We are much interested in your letter of October 26. The method of broadcasting forest seeds by airplane was recently tried in Hawaii as you will note from the enclosed article. Our own experience in broadcast sowing of tree seeds in the West (as contrasted with raising seedlings in a nursery and later transplanting them to their permanent site) has not been encouraging, although there have been occasional conspicuous successes. One element is the cost of tree seed which is quite expensive, though the airplane method of sowing would probably so greatly reduce the labor cost as to offset the cost of seed Another important element, particularly in a dry climate, is that because of uncertain rainfall and the strong possibility of a long dry spell immediately after the germination of the seed, an extensive sowing might be a complete failure. Another difficulty with broadcast sowing as you point out is that rodents (such as chipmunks and mice) diligently gather the seeds. In spite of these possible drawbacks, it is conceivable that the saving in labor costs by airplane might justify a somewhat extravagant use of seed."

In many deforested regions (such as the several million acres of brushfields in California) reforestation will come about from the gradual re-invasion of forest species. The rate of advance will depend on the availability of seed-trees, the distance seeds travel from them, and the number of years for these seeds to develop into seed-bearing trees and repeat the process. It is not beyond the range of possibility that this slow invasion might be enormously speeded up by judicious growing of future seed trees by airplane. Or possibly jack pine stands in the Lake States could be sweetened up with white or Norway pine. Here is a chance for someone to gain eternal renown - at least among the chipmunks.

SHEPARD WINS THE PACK PRIZE

Ward Shepard's paper "The Necessity for Realism in Forestry Propaganda" was at the top of the pile when the committee for the Society of American Foresters had finished placing in the order of merit the contributions offered for the Charles Lathrop Pack prize. Ward gets $500 and the warm congratulations of everyone who knows him. Many suggestions have already been made to him about how to spend it, but as the Bulletin goes to press he remains silent. Evidently he is no believer in propaganda on "How to Spend the Prize Money." - L. C. E.

OBSERVATIONS ON THE HABITS OF BEAVER

By Stanley A. Mahan, Pike.

My observations on beaver during the past season have furnished me considerable first-hand information on their habits and life, though I learned very little that was not already in the writings on beaver. Many interesting things concerning their habits were noted, and seemingly impossible written statements verified. The most impressive of these points is the unusual strength and endurance of the little animals. One beaver will drag a tree or log weighing three or four time the amount of his own weight. The beaver are also strong for team-work in their own colonies - all working toward the same end when a project or job is once started.

One new point of interest is the possibility of their domestication. A colony of beaver moved in on Crystal Creek, above the Gem Mines last summer, and Mr. Whitmore of the Gem Mines reports them getting so tame that they paid little attention to the many visitors who stopped to watch them from a distance of 10 or 20 yards. He often had them come up within three or four feet of him. And one party reported to him that the young beaver came close enough to be picked up. Beaver in the Green Mt. Falls Lake, along the main Ocean to Ocean Highway, are also often seen working with no apparent fear of the crowd of interested spectators within 15 or 20 feet of them.

Mr. Van Wagner, who resides on Trout Creek, reports finding an old male beaver nearly starved in a mine shaft near his place. Mr. Van Wagner fed the beaver for several days until he regained sufficient strength to travel at ease. Mr. Van Wagner then built a ladder so the beaver could climb out. He states that the beaver climbed out and followed him to the house, and for several days afterwards was seen around the yard - apparently expressing his gratitude to Mr. Van Wagner for having saved his life.

In the absence of ample trees to work on, the beaver will work mighty hard to get to isolated trees some distance from water. I have seen them go as far as a quarter of a mile for suitable species. They will often outwit man in their attacks on trees selected for shade or ornamental purposes. This is the case with the beaver mentioned above at Green Mt. Falls. After several of the selected trees had been destroyed the residents of Green Mt. Falls wrapped the remaining trees with a standard weight, close mesh chicken wire, but in spite of this protection the beaver have pulled and broke the wire loose so they could gnaw the tree down, and several of the trees have been lost in spite of protection.

CRICKETS FOR THERMOMETERS

Since the importance of relative humidity had made everyone an amateur forecaster Bush Osborne's trick thumb has been the envy of all beholders. Now comes a serious contender for the honors of chief "rule-o-thumb" weather instruments in the guise of the lowly cricket. C. F. Brooks, a meteorologist of note, tells us in Science Service that "In case you wish to use the cricket for a convenient thermometer it is only necessary to remember a simple rule. Count the number of chirps in 14 seconds, add 40 ,and you'll have the temperature. On this basis the temperature is obtained within one degree at least three times out of four, and within two degrees nine times out of ten." We are thinking seriously of laying in a supply of crickets and cricket fodder. They ought to be more durable than glass thermometers and a durn sight less expensive. - District 6.

CLEANING MESS KITS

A wire brush wheel (soft) connected to the shaft of a tool grinding outfit will help solve the problem of cleaning blackened aluminum mess outfits which are so discouraging an aftermath of every large fire. Chelan, D-6.

"The forests of America, however slighted by man, must have been a great delight to God, for they were the best he ever planted." - John Muir.

THE RANGER

Up from the sage to the pinon; up from the pinon to pine,
Viewing his mountain dominion from valley to far timber line,
A lusty young ranger came singing a song to the musical drone
Of his pack-horse's bell that was ringing a queer little tune of its own

Step along you Lazy, hop along you Blue,
Don't you let the evening get ahead of you.
Yonder goes the moonlight sliding down the pass,
And a mile to make Chilae, water, wood and grass

Its coffee, beans and bacon and then a little smoke,
And some as think that rangin' is nothing but a joke.
Sweatin' with a trail crew, powder pick and drill,
First you got to excavate and then you got to fill.

Linin' up your switchbacks, cuttin' down the grade,
It ain't exactly loafing and smokin' in the shade.
Pullin' down a pay check in the Service means
Raisin' plenty of blisters and wearin' out your jeans.

Mebby so it's healthy when there's nothin' more
Than workin' only twelve hours out of twenty-four.
Mebby so your sleeping when tingle goes the phone,
Fire has been reported up on San Gorgone

Fordin' when the stream's high, riding in the rain,
Livin' close to nature is givin' you a pain.
Slippin' on the round rocks, splashin' through the dark,
Wishin' you was Noah, squattin' in his ark.

And you got to sabe packin' - of course you got to ride,
You got to be a doctor, you got to be a guide,
Carpenter, surveyor, timber-cruiser, cook
And you got to know a whole lot that isin't in the book

You got to sabe grazin' - and how to draw a lease.
You got to listen both ways and try to keep the peace.
When you ain't a dousin a camp fire left by city sports,
Your setting in your cabin making out reports

Oh, it's great to be a ranger and with the rangers stand
With sweat upon your forehead and a shovel in your hand
Mendin' trails and ditchin' until your back is broke,
Oh, it's coffee, beans and bacon - and then a little smoke.

H. H. Knibbs. - (Clipped from D- 5 Bullitin)

THE LOSSES IN TROUT FRY AFTER DISTRIBUTION

The losses in trout fry which were found by the Biological Board of Canada for three months of each of the summers of 1923, 1924, and 1925, have ranged from 73 per cent to 100 per cent

Probably all fish culturists will agree that the two most effective means of reducing losses are (1) to protect the fry from enemies and (2) to provide them with an adequate supply of food. These are fundamental conditions for avoiding loss, whether in the hatcheries, in the retaining ponds or after distribution.

It does not seem to be a wise policy to protect and feed fry in hatcheries and in rearing ponds and then distribute them in wild ponds and streams where they have no protection from enemies and in many cases an inadequate food supply.

If seining or other forms of netting wild lakes and streams are carefully carried out, then both protection and food will be assured and losses will be greatly reduced. This was well shown by the Biological Board of Canada in the summer of 1923. One brook was partially seined of enemy fish and five thousand fry distributed in it. A second stream similar to the first was left unseined and five thousand deposited in it. At the end of three months both streams were seined and the survivors counted, with the result that fifteen hundred or 30 per cent were alive in the former and only 175 or 2 per cent in the latter.

Another example has been communicated to me by Mr. Albert French, vice president of the Mastigouche Fish and Game club, of New York City. The fishing areas of this club are about one hundred miles northeast of Montreal. Mr. French sent me the following letter after reading my article in SCIENCE of December 25, 1925:

"The failure of our trout to breed satisfactorily has been due, we are told by the authorities in Washington, to the fact that our lakes were out of 'balance', that is to say, the suckers were in the ascendant, and we therefore started a warfare upon them in aggressive manner. At the mouth of the various brooks leading into our lakes we placed fyke nets in the early spring ,as the suckers have a habit of going up stream (practically as soon as the ice is out) for spawning purposes. They went into these nets and were destroyed by men employed for this purpose.

"In addition to these fyke nets, I had built a large number of wire traps (which were made out of one half inch mesh galvanized wire) the size of a flour barrel, with one end flat, the other conical shaped, allowing convenient ingress for a sucker weighing two pounds. These traps were baited with stale bread and were placed at various points in our lakes with a rope and float attached, and every second day were emptied by the man in charge. Carefully kept records show that up to the present time we have destroyed 767,000 suckers, and in the instance of at least one of our lakes we feel that we have now gotten it in balance."

The Mastigouche Club runs its own hatchery and Mr. French tell me that all the food which is required to feed both fry and fingerlings while in the hatchery or retaining ponds is obtained from the enemy fish. For a change of diet they are occasionally fed on liver and heart.

The expense of this investigation was borne by the Biological Board of Canada, and the work was done under the supervision of the chairman, Dr. A. P. Knight. - "Science" for October 29, 1926.

OUACHITA LOGGING AND MILLING STUDY COMPLETED

District 7 (Ouachita National Forest), the Southern Forest Experiment Station, District 2, and the Forest Products Laboratory completed on December 20, 1926, a three months' cooperative study of logging and milling as carried on by small operators on the Ouachita National Forest.

Interesting differences in methods of manufacture, grades of lumber obtained, overrun per cent, etc., as between mills came to light. For example, one operator claimed that his method of sawing and trimming for grade far excelled the way other nearby mills did the work. Preliminary data show that he gets four per cent more B and Better than another mill close by, but his lumber underruns the log scale 6 per cent, while his neighbor obtains an 11 per cent overrun.

Such differences raise the question: Upon what kind of an operation should stumpage appraisals be based? What degree of utilization should be expected? How much remanufacture at the mills is justified? Should the millman be credited with the quantitative loss due to remanufacture? These are samples of the kind of questions it is hoped the study will answer.

GAME LAWS ARE FOR THE INDIANS

Beyond a doubt the capture of Indian game violators is the best thing that has happened for game protection in this State for a long time, according to the New Mexico State Game Department. The Indian situation seems to have been taken as a sort of unavoidable evil in the past, but the time has certainly come when it must be remedied. I do not think there is any doubt that the Indians who hunt, kill far more does and fawns than all the rest of the population of the State and the non-resident hunters combined. The potent public sentiment, reversing the policy of the past, states Edgar L. Perry of the State Game Department, has been built up in this connection this year, to the effect that the whole State is very much aroused. We have come in for no small amount of criticism from people who are just being awakened to the true facts in regard to the depredations of these Indians, but I feel that whatever boomerang effect the publicity may have will be a mighty good investment in future protection. There is nothing so potent as public sentiment. The Datil force has hung up a mark to shoot at this season, and I know that I represent the sentiment of the whole sportsmen element of the State in this appreciation. I suspect that poor Lo is going to greatly revise his plans for the winter's meat supply in the future. - District 3.

Service Bulletin

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SECRETARY JARDINE GREETS US.

Dear Col. Greeley:

With the opening of a new year I am impressed by the constructive achievements which the Department of Agriculture has made during the past year. These have been due in no small measure to the self-sacrificing labors performed in the various bureaus and offices. The scientific ability and zeal for truth shown by you and your colleagues are worthy of high tribute. Please accept for yourself and your associates my cordial wishes for a new year full of continued achievement and happiness.

Sincerely yours,

(Signed) W. M. JARDINE

SLASH DISPOSAL IN EASTERN MONATANA

Should we depart from a straight pile-and-burn policy: Mr. Koch, affirmative; Mr. White, negative.

BY MR. KOCH: "In the proposed Bear Gulch Sale on the Beaverhead, the appraisal shows 2,000 M feet of lodgepole pine, at $2 per M, worth $4,000. The estimated cost of piling and burning slash is $1.50 per M, a total of $3,500. The area is at least partially isolated by grass parks. There is a decided question in my mind whether the fire hazard on this and adjoining areas justifies diverting this amount of money to slash disposal. My proposal would be to pile and burn about one-fourth of the slash along the creek bottom and lower slopes and in strips along some of the skid roads. This would bring the cost down to about 40 cents per M, and the other 90 cents would go on the stumpage.

"On the Globe Timber Company Tie Sale on the Madison, we are getting 10 cents per stumpage and 5 cents per tie for slash disposal. Saw timber brings $1.50 per M stumpage and $1.25 for slash.

"There is no doubt that a straight pile-and-burn policy is safe and conservative, but there is such a thing as playing too close to one's chest, or in other words, refusing to take reasonable risks. I would not for a moment abandon the pile-and-burn policy in Idaho and Western Montana, where we have not got on top of the fire problem and where unburned slashings have again and again proved to be an uncontollable risk. Experience seems to indicate that conditions in Eastern Montana are fundamentally different. Perhaps we are piling and burning there only because it is the conventional thing which has been accepted without much analysis. ...

"The policy which I would propose for the Eastern Montana Forests, at least for careful consideration, would be about as follows:

"1. Cut out slash disposal in small ranchers' sales of post, pole, house-log timber.

"2. In larger sales pile and burn about 25 per cent of the slash, along roads, lower slopes, and in strips laid out to break the area in sections. Let the rest of the slash lie as it falls.

"In Eastern Montana, in 1925, the District cut about 14,000 M feet in commercial sales at an average stumpage value of about $2.50 per M, and an average slash disposal cost of about $$1.25. The proposed policy of modified slash disposal would increase stumpage returns about 75 cents per M, or $10,500.

BY MR. WHITE: "In general, one of the major requirements for a bad forest fire and for difficulty of control is inflammable material on the ground. Many of the moderately clean stands burned are burned as a result of the impetus given the fire in a debris-littered area. The greater the volume, the finer the material, and the bigger the percentage that is off the ground a little distance, the more dangerous. Ordinary coniferous slash is one of the most inflammable litters we have. Slash is worst the first two years after cutting. After the second year the needles mostly fall off and then there is a sharp decline in inflammability, From the third year the decline in danger is slow. It takes around 30 years for slash to decompose sufficiently so that fire risk returns to normal.

"Too much emphasis is placed upon the slash that so far has escaped fire. The areas that have not burned make the biggest impression upon one. Burned slashings are the normal, unburned the abnormal, and it is the abnormal that lodges in the memory.

"On the Standard Tie Company Sale, Cottonwood Creek, Wyoming National Forest, Slash was left lopped on the ground for a time. In 1921 there occurred a fire of such extent and difficulty of control that the thought of what might have happened had the fire been in the Cottonwood slash, caused a change of policy to straight piling and burning.

"Charles Brockett, in charge of the Cottonwood Tie Sale in 1922, told me that the cost of genuine lopping and scattering of brush was not very much less than piling and burning.

"Of course, if past history showed that fires seldom started and burned but small areas, there would not be so good an argument against increasing the danger by leaving slash. But the opposite is true. From 1908 to 1925, 18 years, the fire records show that 2,629 fires started on the ten Eastern Forests. During the last 50 years on these same ten Forests, over 1,000,000 acres have burned over. It is hardly possible that we have the record of all area lightly burned over. I have personal knowledge of some large areas burned clean that are omitted from the records. The 1,000,000-acres figure is quite low.

"No; the lodgepole forests are not fireproof. Wind velocity during the fire season in the lodgepole will probably average double that of the white pine type. In general, fires will start and run faster in lodgepole than in white pine.

"In the protection-forest types, on ridge tops and rocky, dry, south slopes, leaving of the slash, in theory, should improve the site. Against this the presence of slash increases the chances for the area to burn over and thereby injure rather than build up the soil.

"The bulk of the cutting is not on the above poorer sites but on the better sites where the benefit of further humus accumulation is open to question. On good soils where there has been no oxidation by fire for a century or so, balsam is quite commonly supplanting lodgepole. Leaving of slash will assist the balsam. It will render the soil a trifle more acid. Burning of slash does assist lodgepole reproduction probably by oxidation of surface soil and thus reducing acidity. The problem of the inferior balsam crowding out the lodgepole on the better sites is real. A certain amount of fire, oxidation, is essential to the maintenance of pines. Controlled slash disposal looks like the answer.

"Upon areas where small sales are made,

it seldom happens that cutting is completed in one year. Some poles are sold one year, posts another year, house logs, saw logs, derrick poles, rake teeth, fuel, etc., other years. If slash is left scattered on the ground it adds something to the cost of future logging on that area. Areas now exist that purchasers avoid, simply because of an accumulation of slash resulting from older cuttings. One of the reasons why small users of timber like progressive burning, once they have given it a fair trial, is that the brush is out of their own way. Will a form of timber management that permits the slash from one tree to add to the cost of logging the next tree, or that permits the slash from my cutting to increase my neighbor's logging expense, command respect from the small users?

"The old Cooper slashings on the Gallatin have interfered with grazing use of the area for the last 23 years, and the nuisance is not over with yet.

"Appearances do count. The Forest Service has spent a lot of time and effort in establishing the custom or system of slash disposal on the National Forests. The custom is well established and generally approved. The work done in fire protection and slash disposal has, in my opinion, done more to win public respect and confidence than anything else. To illustrate how well the custom is established, the following incident is told: During the summer of 1925, some unknown person, possibly a prospector, passed through a portion of the Beaverhead Forest. He camped a while on Swamp Creek. Some poles were cut for a corral. The brush was piled perfectly. We should be mighty sure of our ground before we break down customs that have cost a lot of money and which have taken years to establish.

"There are concrete cases that could be cited where, in many places, injurious insects or fungus damage can be traced back to breeding in slash. Damage to cedar poles and white pine by abrosia beetles and wood borers has been traced directly to undisposed-of slash. Ips may breed to such an extent in slash as to kill considerable surrounding timber. Hubert, Weir, and other mycologists claim that after cutting, rot-producing fungi may survive for years in slash until new host material is ready in remaining stand. Good marking requires that mistletoe, fungi, diseased and insect-infested trees be cut. If slash is left undisposed of, much of the possible benefits of marking are sacrificed." - Excerpts from Minutes of District 1 Committee Meeting.

IV - PRIVATE PAPERS OF P. PALUSTRIS.

Dr. John D. Recreation,

Pomona, Mass.

Dear Doctor John:

I was, I think, discussing in our last the administration of National Forests which have been created out of military reservations. While we were considering the Bennings lands I had a vision, which I passed on to District 7 to work out and realize upon through future years. It was a vision of endeavoring to make woods workers or forest workers out of our colored tenants. If these fields are allowed to go back there immediately springs up upon them a coarse broom grass which for a number of years forms a tremendous fire menace to adjoining areas. That certainly is something to be avoided. Therefore, from the fire protection standpoint alone it is desirable to keep these lands under cultivation if we can until such time as we can devote them actually to growing timber rather than worthless broom. Our plan is something like this:

Instead of seeking to eliminate the use of the cleared areas for cultivation we will encourage the perpetuation of that use upon condition, of course, that they may be taken by the War Department for national defense whenever needed, if ever needed, which, please God, will not come to pass for another hundred years. Instead of asking from our tenants the cash rent which they are unable to pay and which results in the perpetuation of a peonage system we are seeking to avoid countenancing upon a Federal reservation, we will require the tenant to pay his rent each year, in advance, in labor planting or otherwise improving the forest. The Forest Service will furnish the nursery stock and supervision. The time for planting in that region is fall and winter, when the tenant would otherwise be idle. I figure that with the stock, tools, and supervision furnished by the Government we could get one acre of open land planted each year for each acre cultivated. If there is no open land near the tenant suitable for planting we will attack the scrub oak areas and plant to better species. Then we will use our renters in making improvement thinnings and cuttings. The Bennings area is in the turpentine belt; but no turpentine operations are being carried on because there is no body of timber nearby large enough to run a still. However, we probably have within the Forest enough to run a couple of stills from now until doomsday if managed properly. Ordinarily a turpentine still must get its gum from the immediately adjoining sections; but here the gum can be hauled from a distance for we already have two east and west surfaced highways running through the Benning Forest. We expect to build a good north and south road, not surfaced, through the entire area as one of the first protection and administrative improvements. Our tenants, where located close to suitable patches of timber, would be encouraged to work a small orchard each year. Provision will be made for collecting the gum at appropriate intervals and a central still will handle the product. In short, the turpentine still will be like the country creamery that collects and utilizes at a central plant the cream or milk produced upon many farms. I am particularly keen about this turpentine business on account of its effect upon the value of the product from the land. Under present conditions we can sell our pine timber on the stump in this region at about $7.00 a thousand. No difference is made in the price between standing unturpentined timber and timber that has been turpentined providing the work has been done properly and the faces have not been burned by forest fires. Now before cutting we can list the trees for turpentine operations and our receipts from this source on the Florida Forest amount to about twice what we get from the tree when we sell it to the sawmill operator. That means that if we allow our timber to be worked judiciously and then sell it to the sawmill operator our net returns from both timber and turpentine are equivalent to about $21.00 a thousand instead of $7.00 for timber alone.

This same system with some modification, and necessarily with the omission of the turpentine feature, outside of the turpentine belt, will be applied to a greater or less extent on the other National Forests created out of military reservations under the provisions of the Clarke-McNary Act. The plan has met with the formal approval of the War Department. Its legality has been sustained by the Solicitor of the Department of Agriculture and regulations and instructions have been issued putting it into affect on the Benning Area.

The thought may occur to you, why is the Federal Government's Forest Service dabbling in such piffling tracts of National Forest when it already has such stupendous areas in the West? What can it hope to do in the way of furnishing the nation a supply of timber from such small areas as 20,000 acres in the Jackson Forest, 78,000 acres in Benning, 15,000 acres in McClellan, 22,000 acres in Camp Knox, altogether amounting to only something over 136,000 acres, or less than the average western ranger district? The question is a fair one, has been raised by many people in our own organization, and deserves an answer. My answer is, no economy should be too small to merit our attention, whether it be in the expenditure of funds or in the saving of economic resources. These reservations contain certain economic resources which the War Department was not equipped to develop, protect, and utilize. The Forest Service is so equipped. The work will at first require some little outlay from the Treasury. Within a few years, however, the actual receipts will far outweigh expenditures. And to the extent of the productivity of this limited area it will give a full harvest of forest crops and at the same time yield a dividend of Federal revenue, the economic resources will be available for local industrial purposes, and local revenues will be greater by the 25 per cent share of receipts than it could ever expect to be through any system of property tax to be paid by the resident "cullud gemmen".

And after all that is only a superficial and relatively inconsequential part of the whole plan. The principal purpose is to furnish a demonstration of forest management in a broad way, working out through research the best plan of forest management for each type and site and showing what is actually possible of accomplishment. Fortunately these military reservations furnish us an opportunity to do this without additional cost to the taxpayer. They are ideally located for that purpose, each one readily accessible from some good sized city. The fact that they are used also by the War Department instead of reducing their value as demonstration areas actually increased it. for the reason that will bring to each area each year thousands of men whose period in the military service will usually be relatively brief, and these men will carry back to civilian life in the future such a picture of success as we are able to draw from the soil.

Camp Jackson is particularly adapted for this purpose, for the reason that it is to be used as the training ground and encampment for the National Guard of South Carolina, and the three adjoining States of Florida, Georgia, and South Carolina.

Yours for happier tenants and better forests,

P. Palustris

(This is the fourth of a series of six letters. The next will appear in an early issue. EDITOR.)

THE FOREST SERVICE COMES THROUGH AGAIN

In the May 10 number of the Service Bulletin, a description was given of the Forest Service exhibit at the Sesquicentennial Exposition in Philadelphia.

On January 3 we received from the Director of Extension this notice: "It gives me pleasure to transmit notification of award to the Forest Service of a Medal of Honor by the Executive Jury of Awards, Sesquicentennial International Exposition, for excellence of presentation of American Forests; their waste and their preservation.

"The Department was awarded a Grand Prize for its collective exhibit. The award to the Forest Service of a Medal of Honor is the highest recognition given any subdivision of the Department. Four other bureaus and the Office of Exhibits were similarly recognized."

The story of 150 years of forest history in the United States was shown in four sections each 24 feet in length and about 10 ft. in depth. (1) Primeval Forest (2) In the wake of the lumberman (3) Fire, showing devastation; and (4) "The Answer" (approved forest practice).

The four canvas backgrounds were painted by Frank J. MacKenzie, formerly of San Francisco but now of Washington, D. C., who has painted a number of the canvases now in use in our exhibit work. They were in the opinion of those who saw them, masterpieces.

The selection and arrangement of foreground material was so artistically done that it was impossible from the spectators' position to discover where the real trees ended and the painted ones began. Realism was added to this very real foreground building by the placing of several crows which, seemed, like Poe's Raven, perched on dead snags to utter Over the denudation Scene the famous refrain "Nevermore," A huge brooding buzzard did as much in the fire scene; while the primeval forest with its natural cathedral effect was brightened by the presence of brilliant coated scarlet tanagers. All of this artistic building up work, including the taxidermy, was done by Paul J. Fair of the

California District. The high character of the work is attested by the action of the Prize Jury and we extend congratulations to both Fair and MacKenzie on the splendid award. -- H. R. K.

ARE WE LOGGERS?

By James H. Billingslea, Olympic.

In the Service Bulletin of November 15, Mr. Neff of District 1 contends that the Forest Service should log its own timber. Heaven forbid, and grant more power to "the present widespread prejudice against expansion of Governmental activities."

He states that "practically all other large timber holding organizations throughout the world transport their wares to market." But do they? The Southern Pacific, Northern Pacific, and Great Northern Railroads are not directly in the logging business except for the revenue derived from the haulage, of the logs to the mill or the water. James D. Lacey & Co. and many other timber holding corporations and estates are not loggers and never will be.

Our present timber sale contracts provide that the Forest Service approve the plans for logging. They also frequently direct how logging shall progress through certain areas. It is only a matter of a few years before the contracts will go further specifying a definite plan of logging and the type of machines, skidders, slack line, highlead, tractor, big wheels, etc., for given areas. With a fair market price for the wood products through outlets provided by sawmills, pulp plants or mines, etc., - and the sale should not be made until the marketing conditions are reasonably assured - good utilization will automatically follow. I say automaticaly, because when the choker has reached the log over half the cost of getting that log to market has been spent. After that amount of expenditure the logger will naturally take every log that will show a profit, however small. Some excellent work is being done at the present time on utilization studies in the woods but when further research finds a more varied demand, small and partly defective logs will reach the market as surely as lightning reaches the ground.

Would a Government operation logging on a large scale pay the salaries that command the able men now in the game? Would the regulations permit the paying of a bonus to increase the falling, bucking, and yarding of logs? Would it close down when the market conditions justified, or would the camp continue for the sake of the workmen and further depress the market?

Mr. Neff states that of approximately a billion feet of fire-damaged timber in District I, only 10% will be sold at stumpage rates higher than the cost of administration. If the remaining 90% cannot be logged except at a loss, there would be no advantage gained if the Forest Service logged it and charged the deficit to the tax payers, unless forest protection demands the felling and removal of the standing snags. So great a waste is deplorable but it is nothing new and it may be more than a decade before such inaccessible areas can be salvaged.

With the greatly increased staffs at Washington, the District and Supervisors' offices, and the attendant camp overhead, in all likelihood the Forest Service could not log at the present cost per thousand. We have our hands full in growing and protecting the forests,-time and research will bring about the desired utilization. Remember the Government's attempt to log airplane spruce during the war and its administration of the railroads!

A PRACTICAL MEASURE OF WATER CONSUMPTION

By C. G. Bates, Rocky Mountain Exp. Sta.

Go into a plantation of yellow pine trees spaced 4x4 feet, in which the trees are about 5-6 feet high and the branches of the several trees just beginning to touch one another, and you will find trees which, severed just about the ground, weigh 5-7 lbs. green, and about half as much when thoroughly air-dried. Such trees, on days showing considerably less than the average dryness of summer days at the Fremont field laboratory of the

Rocky Mountain Experiment Station, will use approcimately 2.5 lbs. of water in a 24-hour period. It is therefore estimated that on a day of normal dryness they would use as much as 5 lbs. if they could obtain it. The greater part of the transpiration occurs in the period from sunrise till noon.

In other words, a 6-foot tree may require 5 lbs. of water every day, and 2,722 trees per acre, spaced as above, will use 13,600 lbs., or the equivalent of 1.8 inches of rainfall per month. Therefore, without about 2.5 inches per month there is likely to be depletion of the spring moisture reserve, natural pruning (of the lower, older limbs) to leaf area, and natural thinning of the stand as a whole.

Two tests of this kind were made primarily to determine whether somewhat theoretical indications of a difference between species would be born out by the transpiration rates of normally-developing trees. The accuracy of all the tests was strongly affected by air entering the excised stems before they could be placed in water, and causing a rather marked reduction of transpiration after the first day. Douglas fir trees of the same stature, and more full crowned than the yellow pines, transpired not more than three-fourths as much under the same method of handling.

A series of such tests at different experiment stations would be very interesting. It is understood that the difficulty here encountered can be overcome by cutting the stems under water, but as this is hardly feasible unless the tree has been uprooted, the next best procedure would be to dash the stem into water immediately it is severed. Research-Monthly Report.

COOPERATION RODENT CONTROL

In cooperation with the leader of the rodent control work of the U. S. Biological Survey, land owners and counties, a very extensive project in rodent control will be conducted on the Rio Grande Forest and vicinity during the coming year. The project has been worked out under regulation G-16. The Forest contribution to the project will be obtained by a subtraction from the regular grazing fees of about 10% in 1927 and 7% in 1928; a total cooperative contribution of about $5,200. - District 2.

THE LAND OF THE MIDNIGHT SUN

By John D. Guthrie, D - 6.

From Kiruna, we dropped south to Hallnas, still in northern Sweden. Here we were met by Jagmeister (forest supervisor) Elgstrand, who was one of the livest peppiest foresters we met in our travels. He is a technic forester, graduate of the Stockholm forest institute, has traveled on the Continent, and speaks English, French, and German. He has charge of three State forests, is director of a ranger school, and has charge of the large and up-to-date seed-extraction plant. His headquarters at the ranger school are 15 miles from one small town and 20 from another. He is a busy forester, and yet there was absolutely no detail of our three days sojourn with him that he overlooked. One of the party wanted post cards, another wanted shoestrings, two were in need of castor oil (after the Finnish fish diet!) another was interested mainly in the seed-extraction plant, another wanted to see the log drive in operation; he accommodated every one and satisfied everbody. He took us over his forest, showed us his methods of cutting different stages of natural regeneration (pine and spruce stands, with a mixture of birch), his original methods of draining swamps, burning of spruce brush after cutting, his own sample plots, his ranger school, the extraction plant, the log drive--everything! He was enthusiastic, courteous, with boundless energy, a forester with real enthusiasm for forestry. It was an inspiration to be with him. And I may say, he RUNS his forests, he experiments, he tries different systems of thinnings, of cuttings, of management, and what seems to be expected of him primarily is that he shall make his forests pay, - and he's doing that. His management of his forests is essentially a business one; according to his statements, he can justify it on no other grounds. I wish that some of our supervisors could spend a few days with him, or that he could come to America and talk before some of our forest schools; he would give them a new slant on what it means to be a forester. - Clipped from Six Twenty Six.

THE RIGHT DOPE ON THE PEAGGIES.
(PANDORA MOTH LARVAE)

By Guy S. Way, Inyo.

"The Indians, in parties, are now ready to gather Peaggies . They dig a trench around the trees 10 to 16 inches deep and 2 feet wide. The Peaggies drop from the tree trunk into these trenches in great numbers and the Indians gather them in baskets made from willows and shaped like a cornicopia. When the baskets are filled they are taken to camp by the women, the men gathering so as to have the baskets filled by the time the women return. When all are gathered and brought to camp the process of curing begins. The Indians throw up great heaps or mounds of earth building fires on those mounds until the earth is hot enough to bake. The fire is then drawn and the Paeggies are mixed alive into this hot earth and are left until about half done. They are a yellowish brown and tough but pliable. The Peaggies are separated from the earth by means of baskets used as sieves and are then spread out to dry in the shade, but the Indians keep burning fires continuously until the Peaggies are thoroughly cured. The heat from the sun will spoil them. After being cured, this way they are put into sacks and kept in a cool place.

The Indians then take the Peaggies home and use them in stew consisting of Peaggies, potatoes and salt and pepper if they like they add other vegetables. Some of the white people who have eaten of this kind of stew say it has the flavor of mutton. This stew has a creamy color and is served with bread made from pinenuts or of sun flower seed ground very fine. - From Western Forest News".

IT'S ALSO TRUE OF FORESTRY

An ink blotter lying before the writer has caught the eye with these compelling words: "Don't think that people are going to keep on remembering you unless you keep on telling them who you are and what you sell." It is an advertisement in behalf of advertising itself. True words, aren't they? Do you remember the breakfast food you bought regularly, say twenty years ago? What was its trade name? Some kind of corn flake, or rolled oats, but you can't recall what it was labelled by the manufacturer. That's because advertised brands have completely displaced it, and before you were aware of it you had forgotten the old favorite. Righto! You must keep on telling the world who you are and why! - District 3.

TO EXTEND DURABILITY OF AUTO TOP

Auto tops usually give way, if at all, directly beneath the middle bow. This can be remedied by placing a strip of felt or sheepskin, wool side up, on top of this bow. Q. R. C., District 4.

A NATIONAL PROGRAM OF FOREST RESEARCH

The above is the title of a new volume and was prepared by E. H. Clapp as the report of a special committee on forest research of the Washington Section of American Foresters. The other members of the committee are R. C. Hall and A. B. Hastings. This volume is more than a program: it is a compendium of what has been done, what is being done, and what needs to be done in forest research. The report was published by the American Tree Association for the Society of American Foresters. Those wishing to obtain copies should write to the Secretary, Society of American Foresters, Atlantic Building, Washington, D. C.

Service Bulletin

U.S. FOREST SERVICE
(Contents Confidential)

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AN EXPERIMENT IN PERSONNEL TRAINING

By E. P. Meinecke, D. 5.

Seventeen years ago, in 1909, it was my privilege to attent the first Training Camp held by the California District at Hot Springs, perhaps the first of its kind in the history of the Forest Service. Of the teaching staff of the first camp only two contributed to the Training Camp at the Feather River Experiment Station, October 3 to November 13, 1926, and a comparison of the curricula illustrates strikingly the difference in viewpoint and the mighty advance the Service has made since those early days. Similar attempts at group training, ranging from informal and local gatherings to carefully planned camps, have been made from time to time throughout the Service.

The need for intensified training of the personnel made itself felt even in the early years. After all, a Civil Service examination cannot cover more than relatively few of the thousand and one activities of the ranger's or junior forester's job. Perhaps in no other branch of the Government did there exist so urgent a need for the all-round handy man, the jack of all trades who could be relied upon to carry a job through without other resources than those his training afforded him. The training camps were intended to fill the gaps in his experience. They were essentially built upon the idea of job-training. To give him greater skill in the performance of his duties was the main object of the training offered.

The times have changed. Not that skill and the business-like carrying out of the daily routine play a lesser role. On the contrary, but performance of duty no longer stands in the foreground as an end in itself. The coming of age of the Forest Service has brought with it a clearer visualization of its iltimate aims and deeper purposes, above all the realization that all activities, divergent as they may seem, lead together from the passing present to a greater future. What is accomplished to-day can only be judged in its bearing on what is to come. It stands to reason that this change in direction must make for greater demands on the resourcefulness of the human material with which the Service operates. The criterion of performance is no longer the mere carrying out of instructions and regulations by rule of thumb but the degree of understanding and the clearness of reasoning which lift the job to the higher plane of a conscious act. It was the professional viewpoint which has characterized the California Training Camp of 1926.

The District committee on personnel training realized from the beginning that more was needed than running a dozen or two of young rangers through a purely practical curriculum. Nothing short of a general raising of the professional standard throughout the personnel of the District was accepted as the ultimate goal. The Training Camp was considered only as the primary essential, and immediately possible, step. It forms but the first part of a more ambitious program which hopes for training camps of four to six weeks each in two successive years; the first to give fundamentals, the second to elaborate and intensify the training received. Eligibility to the second camp is determined by the record made in the first and, to a much higher degree, by the responce shown in the practical work on the Forest during the successive years. As far as possible every younger member of the Service should go through both camps. The main objective of the system is to bring all Forest officers up to a certain standard. Best performance can only be expected of a group of men who speak the same technical language and automatically act in unison without having to go through the process of slow adjustment to each other and to the job on hand. The training camps should fit the men for the positions they hold, but do not necessarily make them eligible for advancement. That hinges upon the reaction of the individual to the stimulus received. The problem of providing for a certain supply of promising eligibles in the lower grades for promotion is as important in the Forest Service as in any other branch of the Government. It seems to increase in difficulty from year to year. The crucial positions obviously are those of assistants and deputies, men who should be ready to move up at any moment to the prerogatives and also the responsibilities of the higher grade. The need for training makes itself felt particularly in the group of eligibles for the grade of Forest Supervisor.

The plan elaborated by the California District proposes to meet the problem by extending the training courses beyond the two-year standard camps. Special assignments of smaller groups of older rangers and assistant Supervisors are intended to provide opportunity for advanced study. Training henceforth is no longer directed towards improvement of the individual for his particular job. It plans for his future as well as that of the Service. The men of this group may be assumed to possess the technical training requisite. Mental equipment is what governs their fitness and eligibility for promotion.

If the leading idea of the District plan is a general raising of the intellectual, that is professional standard, opportunity for advancement upon a higher plane must also be offered to Forest Supervisors as well as specialists. Assignments of small groups to round-table discussions of current problems are contemplated for this type. The object is no longer training for special promotion but stimulation to original thought and to contributions to forestry in all its branches. In the long run the entire personnel of the District will thus be offered an opportunity for professional advancement. The degree in which each man responds to this opportunity in his performance determines his value to the Service.

The first term of the Training Camp demanded careful preparation. Its objects were threefold, namely to offer the younger men a broad outlook over the entire field of forestry as a frame for their activities, to give them an insight into the aims and the machinery of the Forest Service itself, and to help each man to overcome precisely those handicaps arising from lack of specialized training which prevent him from attaining the full measure of usefulness as a Forest officer.

Training Camps in the Service suffer from two weighty difficulties. The teaching staff is not trained to teach and the attending pupils are not ill prepared to absorb what is offered them. In the staff there is little choice. District officers alone are available to teach their own specialties as best they may. The class itself can be selected from an abundance of candidates. That of 1926 was admirably chosen. The intellectual level was above the average and few men rose much above or fell perceptibly below the standard.

Previous experience has shown the

risk of leaving the planning for the curriculum entirely to the individual teacher. Each man has his own ideas, and perhaps hobbies, to which he will naturally enough give weight, often to the detriment of the unity indispensable to a well-rounded presentation of the matter. When a huge field such as that of modern forestry is unfolded before a group of men more used to strenuous out-door life than to listening and absorbing systematized thought this weakness becomes distressing and confusing. Starting from the principle that a curriculum, to be effective, must be thoroughly balanced and must follow a clearly defined line, the committee attempted to establish a level it thought best suited to the specific objects of the first year term and to erect upon it a framework of essentials, letting the teacher fill in the elements of his specialty. In the form of a carefully prepared outline, the committee offered to the members of the staff its conception of what the curriculum should cover without infringing upon the privilege of each individual to shape his course in any way he desired. The results obtained have amply justified the work and thought spent on the preparation of the outline. Considering the wide difference in the teaching ability and experience of the staff it was gratifying to note the maintenance of the level of instruction to its adaptation to the specific type of class it was intended for. The class responded with unflagging attention and keen interest to the very last hour of the camp, in spite of a rigorously enforced eight hour day and the serious handicap that often the same teacher lectured one or even two full days in succession.

The strenuous class work was interrupted as often as possible by days in the field, which prove so eminently profitable that at future camps as much time as possible will be devoted to that form of instruction. No one will forget the days spent in the woods in the course of management, grazing, or surveying. The class was broken up into small parties, each under the leadership of an experienced man. The teacher of the day and his helpers went from one group to the other lecturing, answering questions, and smoothing out difficulties. If a weakness appeared in these extended field trips it came from the perhaps unavoidable specialization. The days were devoted entirely to one subject such as management or grazing. But every locality visited presents as many problems as there are activities within the scope of the Service. Here is the place to impress the young ranger and junior forester with the vastness and breadth of his profession, to illustrate, by specific examples the interweaving and close interrelation of all branches of the Service and to stimulate observation and interpretation of the physical material with which he has to deal in practical forestry. It will always be necessary to devote a goodly proportion of the time available to special field training in the principles and technique of marking, handling of stock, surveying and mapping of summer home sites, telephone work, and the like. But it might be wise to carry more of the classroom instruction right into the field. Neither the spoken word nor charts nor lantern slides carry the power and intensity of the living example of the physical object in the open where within a few steps new conditions and new combinations offer an ooportunity for discussion and vivid examplification such as never can be given in the classroom. Nothing could be of greater value to the student than to have the same locality viewed and discussed successively by representatives of all the main branches of the Service. Nothing could bring home to him more strikingly the constant interplay of Service activities than the weighing and harmonizing of conflicting interests that make up and direct forest policy. Unfortunately the demands made on the teaching staff are already so great that it will be difficult to bring a larger group together at the same time. Such an overlapping of subjects would perhaps benefit the staff as much as the students. At present, very few men are capable of presenting and discussing intelligently all the phases and possibilities offered by the individual locality visited. The advantages on the other hand are so obivious that an earnest effort should be made in the future to give greater weight to this important feature.

The actual technique of teaching was lift entirely to the discretion of each man. No examinations were held. At best they favor the individual with the most retentive memory. The practice of a short recapitulation of the salient points of the preceding classroom hour at the beginning of the next either given by the teacher himself or in the form of a few questions put directly to individual students was generally agreed upon as the best means to insure continuity of thought. The working day closed with the last hour at 5 P.M. Evening work was discouraged. Eight hours of severe intellectual discipline is ample for men coming straight from a varied diet of mental and physical work. That the efforts of the day were not excessive was proved by the lively debates of the day's problems around the tent stoves and the fire place.

It is fortunate that at least a few of the members of the Committee on personnel training have been able to attend all or the greater part of the camp, maintaining as much as possible the established level of instruction and critically observing and judging the workers of the program in its practical application. The success of a training camp is determined not by a curriculum, be it ever so carefully thought out, but by its effect on the class and the lasting reactions carried back to the field. The immediate gain consists in a measurable increase in efficient job performance. Greater, perhaps, are the intangible benefits of a closer knitting together of field force and District Office, of personal contacts, of Service trandition and Service spirit. Greatest of all must be the realization that the training is offered not merely with the expectation of greater output per dollar of salary received but with the desire to contribute to the personal development of each individual's faculties to a richer and fuller professional life.

FOREST FARMS

By W. N. Sparhawk, Washington

Doctor Palustris' discussion of the tenant farmer problem on the Benning (Service Bulletin Jan. 3.), and especially his idea of using the "economic power" of the farm lands to increase the productivity of the other 75,000 acres, reminds me of the combined forestry-farm development that I saw last spring in eastern England.

Commencing in 1919, the British Government had acquired up to the end of 1925 approximately 30,000 acres of sandy land in three units in the Counties of Suffolk and Norfolk. These areas include considerable arable land, and a large number of farm houses and cottages, including at least one entire village, were acquired along with the lands. The farms had long been deteriorating, many of them were abandoned, and the whole district was in a bad way. It was soon found that a good supply of local labor was essential to do the planting and other forest work, and in 1925 the scheme of Forest Workers' Holdings was put into effect.

The better soils have been classified and divided into units of approximately 10 acres, and a house with necessary outbuildings is being provided for each unit, either by repairing existing structures or by building. The occupiers, who are carefully seleced from a waiting list, pay 5 to 10 shillings ($1.25 - $2.50) an acre annual rental for the land, and 6 per cent of the cost for buildings. The Forest Department guarantees them 150 days' work a year at current local wages, and also hires their teams and plows for planting work, for making fire lines, and for hauling. They are encouraged to raise vegetables, small fruits, poultry and pigs, for which there is a good market fairly near. It is planned ultimately to have about five of these small farms for each 1,000 acres of plantations, i.e., a maximum of 5 to 8 per cent of the total area will be used for agriculture. They are to be well distributed over the forests in groups of three or more, so as to avoid lost time in going to and from work and to afford a maximum degree of protection, for the fire hazard is high.

So far the work has consisted chiefly in nursery operations (86 acres of nurseries) and planting, including preparation of the ground, fencing, and eradication of rabbits, which outside of the fenced areas remind one of our western prairie-dog villages. About 12,000 acres were planted during the first seven years and the work is now proceeding at the rate of over 3,000 acres a year. It is expected that thinnings will commence in 10 to 12 years and will furnish firewood, fencing and other material, and mine props can be cut a few years thereafter, thus furnishing increasing demand for labor. As timber becoms available, various wood-using industries will be established.

The effect which these forests will have on the local communities is indicated by the fact that on the 20,000 acre unit known as Thetford Chase 56 settlers have already been established, and some 350 persons were given part time employment during the fall and winter of 1925-1926. The population of the State-owned village of Santon Downham, which had been almost deserted ,has increased from 50 to over 200.

To come back to the Benning -- it seems to me that the Service has there a fine opportunity for a demonstration of the close interrelation of timber growing and permanent agriculture which we have been preaching about for many years. Incidentally, might not the tenants find it easier to "rustle the rent money in advance" and be freed from the domination of the local merchants if they could be employed on the Forest for cash wages during a few months in each year?

WILDERNESS RECREATION AREAS.

By M. H. Wolff, D. 1.

It is not hard to agree in general with Colonel Greeley's viewpoints in the leading article in the Service Bulletin of October 18.

Wilderness is a matter of degree. Degree relates to size and to wilderness characteristics and varies according to the viewpoint of the individual.

To my notion a wilderness area must be rather large, say extensive enough to permit fairly straight-away travel for at least a week or so by the crudest means of transportation, so that while in it one may feel that he is some distance away from so-called civilization. Some wilderness supporters would demand even a larger area. On the other hand it has been proposed, by keeping out roads, to make a wilderness area out of a timbered basin in the White Mountains, the center of which is two or three hours' walk from automobile roads. Indeed it was not so long ago advocated by someone living in one of the Mississippi Valley States, if I recall correctly, that a tract of 320 acres near his home, be set aside as a wilderness area. How large, then, should an area be to be a wilderness?

When is an area, wilderness? Most of the emphasis heretofore has been placed on no roads. This implies that ranger dwellings, guard cabins, lookout observatories, trails, telephone lines, and firebreaks do not sufficiently tame the wilderness to detract from its major lure. To some concepts, this is not necessarily true. I can conceive that a state of true wilderness might even demand that no fire protection be carried on and that nature be allowed to take its unhampered course.

The individual concept must vary. Intrepid Lewis and Clark suddenly reappearing in the Northwest now, would undoubtedly not consider that there is any wilderness left. After living in Seattle for a year, they might acknowledge that the Upper South Fork of The Flathead River in Montana is a wilderness. On the other hand, a New Yorker never before out of the canyons of his city might consider it a hardship to have to reside in what is to him the wilderness of the average reasonably well developed ranger district. He might consider an area a wilderness because it has only dirt roads, even though they be readily traversable by motor or because hotel accomodations are rather crude.

A wilderness can never be tangibly defined. The wilderness measure of any tract will vary with the development of the surrounding country and the social and economic development of the people who may wish to use it for recreation. Wilderness is always relative. There can be no consistent uniformity, of definition, and each individual area must be given individual consideration. And the influences affecting it must from time to time be reconsidered.

Compliance with the accepted principle of "the greatest good to the greatest number in the long run" when it is applied to the use of land requires some forehandedness or planning. A plan may be very general -- it may then be called a policy -- or it may be very refined. A plan would provide, within the limits of the above principle, for the proper use of the land. What is the proper use of the land will change from time to time.

Colonel Greeley's policy to my mind starts with the foundation that of certain areas, at any given time, recreation may be the highest use. At such a given time, all the other uses must be kept subordinate and subservient. At a later time recreational use may become less distinctive as the highest use, as legitimate use of other kinds develops. At such a time, the relative importance of other uses must again be weighed, and the provisions for recreational use and for those other uses must be brought into proper balance.

For the recreational use itself, Colonel Greeley goes a step further. He recognizes as legitimate the demand for recreation of the kind obtained "away from the beaten paths". He contemplates that at any given time this will be provided in reasonable proportion to demand for it as against demand for recreation of less primitive kind.

Anything is not a wilderness, Colonel Greeley's article implies, which has roads or recreational buildings,. All other kinds of improvements seemingly would not spoil a wilderness area. I hesitate to agree to this as a division point between wilderness and nonwilderness areas applicable to all cases. I believe that just so much as "methods of administration in other respects will doubtless vary as between different areas", so also should vary what is the correct degree of culture for different areas whose dominant use is recreation. For example, if it be justifiable - and I absolutely agree that it is - to permit small reservoirs, or cutting to a certain degree, on areas called wilderness areas and still consider them wilderness areas, then surely it would be justifiable to permit the construction of recreation homes within certain limitations, where the general wilderness of a locality is not diminished to any material degree. It would be possible to permit in a wilderness area well hidden cabin retreats for those who seek wilderness but not to the degree of insisting on sleeping in tents or under the canopy of heaven. This leeway would meet a possible logical recreational demand for wilderness enjoyment of a slightly modified degree and at the same time could be so controlled as not to injure the enjoyment of those some what more primitive in their desires. Even in regard to roads, were Western Montana and North Idaho no longer a wilderness upon the building of the Mullan Road? On the other hand, I can conceive that wilderness demands may have to be met, and can be met by limiting other kinds of construction besides roads and recreational structures. Colonel Greeley proposes that in some cases grazing use may have to be gradually eliminated. I can visualize that in some cases it may be necessary and at the same time wholly feasible to eliminate ranger dwellings, guard cabins, firebreaks, telephone lines and even trails. Since there is no standard minimum size for wilderness areas and protection is the only need of a wilderness area, while at the same time many localities have fire danger very low, there can safely be left relatively fair sized areas without facilities for rapid mobilization in case of fire.

To summarize my views concretely, following each element of Colonel Greeley's proposal as I understand it:

We will recognize wilderness recreation as a legitimate demand to be met whenever higher uses of the resources on National Forest lands do not conflict. In weighing conflicts, we will give wilderness use a priority commensurate with the observable strength of the legitimate demand. This is wholly uncontrovertible.

We will not build additional roads for recreational purposes where there is sufficient country in the region already opened up by roads to take care of the reasonable proportion of demand for nonwilderness recreation. This has an added advantage of being good, sound financial policy, and certainly must be agreed with.

We will not allow recreational permits in wilderness areas but will allow utilitarian uses. The soundness of this differentiation for general application is not clear to me, and I disagree with it. I would not "pick on" these two pieces of culture - roads and recreation permits - as alone specifically taboo in all wilderness areas. In regard to these and all other possible culture, be they recreational, utilitarian, protective or administrative, I would endorse wholeheartedly the application of a principle changed somewhat in wording from the last sentence under Caption 4 on Page 3 of Colonel Greeley's article. This might be expressed as "the features of a particular situation can be dealt with at the time, with the Service keeping its hands free to deal with it in the most commonsense way, while maintaining its resource utilization policy insofar as the essential needs in the use of economic and recreation resources will permit."

Simply; let us recognize wilderness recreation as a legitimate use, and consider it in its proper balance in our resource utilization plans, each problem being given individual consideration.

PERCY CLIMBED

Returning from the Bugaboo Fire recently, where he had packed supplies to the fire-fighters, Percy Chance suddenly came upon a big black bear just below the Coffin Mountain Lookout. The horses became frightened as well as the packer, who suddenly dismounted and climbed a convenient tree. Percy climbed so fast that he arrived at the top before he was aware of it and the tree suddenly broke, dropping him to the ground, Concluding that his feet were more reliable than a tree, he started after the horses, which were going down the mountain in a dead run. In spite of pink chaps and riding boots, Percy passed the horses before they had gone a quarter of a mile, and kicking one out of the trail that barred his way, he yelled, "If you can't run, get out of the way for a man that can." From Six Twenty-Six.

PAINT VS BLAZE

By G. E. Mitchell, Chelan

In the November 29 issue of the Service Bulletin, Mr. Guthrie proposes to abolish the Service blaze and substitute a paint mark. This looks good, because:

(1) If desired, a different colored paint can be used to mark different classes of trails; (2) The woods are full of blazed lines and trails, which are often not easily distinguished from Forest Service blazes. (3) The paint mark is easily distinguished and quite permanent, though easily removed. (4) It in no way affects the growth of the tree.

As to the durability of the paint, a number of Bench Marks and figures on this Forest are still legible, which were put on trees in 1903-6 by the U. S. G. S. They used white paint, which I believe is most conspicuous. It would appear that paint is as durable as a wood blaze, even more so on fast-growing trees.

The U. S. G. S. might suggest some convenient way of handling paint. It would seem that an arrangement, similar to our paste brush and jar, could be devised that would keep both paint and brush fresh and secure.

As to the cost of paint vs. blaze, I am inclined to think that the paint will cost more. In the first place many of the trees will have to be blazed sufficiently to make a suitable backing for the paint. This will probably take more time than to chop a blaze through the bark. It will require the additional equipment of paint, oil, brushes, and can, which may be difficult to pack. Then there is the proposition of going over our entire system and remarking the routes. This is quite an undertaking on Forests with 400 or 500 miles of trails. However, I think it is worthy of discussion and experiment.

OPERATION MECHANICS

By P. Keplinger, D. 2.

Not so very long ago I met my old friend, Bill Fraser, ex-Ranger, ex-Supervisor, organizer of the Harold Lloyd Corporation, and its present general manager. In asking Bill about his present job compared with his fifteen years spent with us, I thought of course he would look upon that period of his life as wasted and that he would express a wish that he had got an earlier start in business. But not so! No, he surprised me by saying that his work in the Service was the best possible training for his present work; that the two jobs are closely parallel, and that at every turn his experience has helped him, not indirectly as general training, but directly in handling the job. What struck me most was his idea that the two industries are so closely parallel; that knowing one you could step right in and run the other. I had never thought of it before, had you? So I followed up the idea and what I found was that Bill had stepped over into the movie industry and organized a National Forest, taking with him our general form of organization, many of our forms, records, reports and inspection methods; and it worked! He has one of the most efficient organizations in the industry, and is forging rapidly to the front.

But some of you are saying, "It was just luck; anybody can make money in the movies". Don't you believe it! Being over-advertised, it is the worst over-crowded industry in existence. They don't advertise the failures, that's all.

But that a digression. The idea that impressed me and that I have been thinking about ever since is that right here in our own organization, among our own Supervisors, we have men capable of stepping out into big business, any line of business, and because of their experience and training with us, make good. Yes, we do have them. They have not all quit and many of them never will. Don't it just make you feel proud - proud of the Service, I mean, that does such things to men? Why does it? Why, because a Forest is a big business, and handling it properly is a man-sized job. Having really learned a Forest, he has learned all business, since business administration is itself a science. It is a technical job just as truly as silviculture. The movies are not really so much like forsetry, no more so than banking or sheep-raising. The principles of business management are the same wherever you go.

But do we appreciate the wonderful organization we have and the men - these common looking Supervisors who can do big things? Do we realize what we have? Possibly the Boss does, but I never did. And, thinking it over, I am afraid there are others that haven't. Haven't I talked slightingly of non-technical Supervisors, and haven't I heard others? And haven't I read articles deploring the need for "technical" Supervisors, who will neglect their business to roam the woods with a marking ax? And haven't we nicknamed these fellows like Fraser "operation mechanics"? And was that name originated and used as a recognition of their business technique and their real worth to the Service? And don't we still hire botanists to make their business management plans for them? When I try to figure it out, it gets me all mixed up. Who is it that is really "technical" and what kind of "technique" is it really that has made the Service great?

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EYES THAT SEE AND EARS THAT HEAR

By Joseph Kittredge, Jr.,
Lake States Exp. Sta.

The forester's eyes and ears are the most useful tools of his profession. He is trained in school to observe continually, to listen carefully, and to record faithfully what he sees and hears. The development of the keenness of these faculties should not stop at the end of his school course, but should continue throughout his career as a forester. As forestry practice becomes more intensive in this country, the forester's ability to observe and the information he has acquired by observing, listening, and recording may easily become determining factors in his success.

His eyes and ears are hardly less important in the development of the forest property on which he works than in his own advancement. An immense amount of the most fundamental information about the life histories of the trees and forests, facts which will form the basis for silviculture and management, can be accumulated by these men who have been trained to observe, if they will make a habit of using their eyes and recording their observations.

Even if the forester, for the first year or two, is assigned to jobs such as building fence, setting telephone poles, building trails, fighting fires, or counting sheep, which make no demand on the technical information he has acquired in school, he should cultivate the habit of observing, listening, and making notes incidental to his work. Often it will go far toward relieving the monotony of the job and keeping alive an interest in technical matter which will later be extremely valuable to him and to his work. In the early days of the Forest Service, each Forest Assistant was expected, after a reasonable time, to prepare a silvical report on the Forest to which he was assigned. These reports gave official status to the very things which have been suggested; namely, they made the new men observe, stimulated their interest in silvics, and provided valuable information about conditions on the Forest.

The forester's job during the first few years is likely to keep him in the woods most of the time, so that he has the best possible opportunities to see and record the daily developments on the life of the Forest. What are some of the things that are worth recording? To answer the question, completely, the whole field of silvics would have to be covered. Some examples, however, may be suggested. The occurrence of seed years and the relative production of seed for different species in different years is an important matter both in natural reproduction and in seed collection for nurseries. Any forester when he is in the woods can recognize a good seed year for some species of trees. He may remember the fact of a good seed year for red pine for two or three years, but unless he has made a note of it, by the time another seed year comes around, 6 or 7 years later, he is not sure whether the last one was 5, 6, 7, or 8 years ago. When do seeds ripen and begin to fall? How far does the seed carry from the parent tree on calm and on windy days? A man who is working on a trail when the seed is flying has as good a chance as anyone to see and note the facts. It counts nothing in his trail job, but it will be valuable information for him or for that Forest in later years. There are days in spring and summer when the pine pollen flies so thickly that the air, at a distance, looks yellow. The dates and conditions on these "pollen" days are worth noting, for their occurrence may be one of the important factors in the seed production of the succeeding two years.

The distribution of forest types in relation to soils and topography is another interesting and important matter. In the mountains of the West, it is often obvious that western yellow pine grows on the south slope and Douglas fir on the opposite north slope. In comparatively level regions, like the Lake States, topography is not the determining factor in the distribution of the types. Locally, it is determined by differences in the soils; red and Jack pine grow on the sandiest soils, and immediately adjacent on a loamy soil maple-hemlock, or aspen-birch are found. A few of these obvious differences are recognized and well known, but how much more might be known if careful observations of the conditions of the soil or topography under which the different types grow, were made and recorded by foresters in the course of their regular work. There is another phase of the question of type distribution in addition to the reasons for the differences in type; namely, the actual distribution by area and locations of the different types. Any working plan must indicate the locations and areas of different forest types. At the present time, timber survey maps are usually not available for the whole area covered by a working plan. Often the maps and areas which must be worked out could be made much more accurate if foresters who had worked on trails or telephone lines or fires, on the area in question, had made notes of the changes in forest types in relation to survey lines and corners or any points of known location. Much can also be learned about the location of types, stands of special interest, yields and many valuable economic facts by listening to and drawing out timber cruisers, loggers, and woodsmen who have spent years in the woods and have quantities of useful information which they themselves will never put on paper. This is a chance for ears that hear.

How much do we know of the root habits of our different tree species? In general, we say that the pines and oaks and hickories have tap roots and that spruce and beech have spreading root systems. So far so good, but how about the trees with less definite rooting habits or the less important species or the brush species which may be the controlling factor in the natural reproduction of the valuable tree species? How far and how deep do the roots of different species of different sizes extend? Do the soils affect the root development? In what proportion does the species reproduce from seed or from stump sprouts or by root suckers? How much chance does a pine seedling have to develop when it starts in a thicket of hazelnut whose roots form an almost complete mat just beneath the surface of the soil? Often a forester has a half hour or more waiting to meet some one or for a train or bus connection, which might be profitably spent digging out the root systems of two or three small trees or important brush species close at hand.

Almost, every man in forest work at one time or another has to measure or estimate the sizes of timber in cruising or scaling work. He will estimate the diameter or height of a standing tree closely, but how much does he know about how old these trees are, or how fast they have grown? On the National Forests in Minnesota there are stands of Jack pine with understories of red pine and

and stands of aspen with understories of balsam, spruce and pine. The trees in the understory are very much smaller than those in the dominant stand. But, what about their ages? Judging by their size, the understory would supposedly be much younger, although, as a matter of fact, it is often of the same age as the overwood. A knowledge of age is necessary for a knowledge of growth and yield, and it is also an essential factor in the determination of the height-age relationship as an index of site. The question has been asked recently how long it takes for cedar to grow to pole size in the Lake States. Apparently no one knows much more than that it grows slowly. A few ring counts and diameter measurements of stumps on cut-over land or of butt cuts of ties or poles in a yard, in spare moments, or the use of an increment borer incident to other work, will furnish much needed information on the ages and growth of the many species which have not been specifically studied.

A host of questions in regard to natural reproduction remain unanswered. What are the seed bed and other conditions under which the different species reproduce naturally? A little watching in the Lake States will soon show how often balsam fir, spruce, and birch come up on the rotting wood or down logs. We know the most obvious things of that sort, but what of the species whose habits are less well marked. Again, good observation and notebook records of the conditions under which seedlings are found and have originated would greatly increase our knowledge of natural reproduction.

Another field in which many more observations are needed is that of damage to trees and reproduction in all their stages of development. In the extreme cases, it is obvious that fires, rabbits, insects and wind caused damage or destruction to the forest, but how much damage is caused when these agencies act less severely? What proportion of the reproduction of different species is destroyed or damaged by rabbits in different years? How many and what species recover from effects of fire? The man who has fought a fire knows how fast and hot it burned. But when he goes by a place a year or two later, does he look to see what the resulting damage has been? Fire damage is considered sufficiently important in the Lake States, California, the Southern Appalachians and in the South that the Forest Experiment Stations in each of these regions have made or are planning to make special studies to determine the quantity and quality of damage. The work in these projects would be much easier and more complete if local foresters knew from their own observations and records where areas could be found on which fires of different degrees of intensity and with resulting differences in amount and character of damage could be studied. Still more important, the local men would know from their own observations more about damage which would be available in their regular work.

The succession of one forest type replacing another naturally over a period of years or quickly as the result of fire, is a most interesting process and one which has great importance in silviculture. In the Lake States the areas formerly occupied by the white-pine and maple-hemlock types have been converted by cutting and fires to an aspen-paper birch type. These species now have little or no value in the region. They occupy a larger area than any other one type and, therefore, the conversion of as much as possible of this area to more valuable species becomes an important problem. It is one of the current projects of the Lake States Forest Experiment Station to study the process of natural conversion of the aspen-birch type to pine and spruce and balsam. Men who have been familiar with the region have been asked for locations of areas of aspen-birch where conifers have been coming in. A few localities for study have been suggested, but how many more could have been located immediately without the need of scouting if local foresters had watched the country and the reproduction and made notes of what they had seen and where they had seen it.

These are only a few examples of the many interesting and important processes in the life history of the forests of any region about which accurate knowledge is essential for silviculture and management. Most of the points are not of immediate or urgent importance as far as the work of the local men is concerned, but the forester is always building for the future and these silvical facts are the bricks which he must use for his structure of silviculture and management. His eyes, ears and pencil are the clay and the straw. Let him have EYES THAT SEE, EARS THAT HEAR, AND A PENCIL THAT RECORDS. - From District 2 Bulletin.

V - PRIVATE PAPERS OF P. PALUSTRIS.

Dr. John D. Recreation,
Pomona, Mass.

Dear Doctor John:

The National Forest Reservation Commission at its meeting March 31 made an important decision and one which I hope will be cherished by future generations of conservationists. By vote of 6 to 1 they agreed to put into effect Section 6 of the Clarke-McNary Law, which authorizes the Commission to purchase lands upon the watersheds of navigable streams upon the report of the Secretary of Agriculture that the control of the lands by the Federal Government "will promote the production of timber thereon." This authority was desired in order to enable us to acquire lands for National Forest purposes in the "piny woods" of the South and the sandy deforested plains of the Lake States, in addition to our purchases in the mountains. The Commission had been hesitating because some question was raised of the constitutionality of the law. However, the advice of the Attorney General was that the Department of Agriculture and the Commission, being executive bodies and not judicial or legislative, should proceed to execute the law unless or until stopped by some judicial procedure. They have therefore proceeded and have established a purchase unit in Michigan surrounding our East Tawas and Mio Divisions and embracing a total area of a little over half a million acres. They have also created a purchase unit on the Superior Forest, including all lands now within the exterior limits of the Forest boundary and extending the boundary somewhat on the south and to the lake on the east. At the same meeting the Commission approved the purchase of 51,000 acres of land from the Michigan Agricultural College at the agreed price of $1.00 per acre. These lands meet adjoining lands upon which we have been conducting planting to a considerable extent in the past. We wanted to acquire them because our planting has now reached the State land. We want to continue to use our present camps and plant the adjoining State land lying between our land and a bend in the river. More important than this, however, I have in mind the fact that if our planting proves as successful as it now promises, 50 years from now we will be carrying on very extensive logging operations right in that very vicinity, and we will not want to move our logging camps, and no doubt the railroad, off to some other part of the Forest just because the title to the adjoining land is held by other than the Federal Government. We hope to build a real forest in that region. The timber that we harvest will be white pine and Norway pine, but the largest part of the half million acres will be white pine of much better quality.

On this Division of the Michigan Forest we have been actively engaged for a number of years in experimental and demonstration planting. After considerable study we think we have learned how to do it and what to expect in the way of returns. Our planting here is cheaper per acre than anywhere else in the United States. Our average cost for 3,160 acres planted in 1924 was $2.94 an acre. This seems incredible, but it is nevertheless true, this figure actually including every factor of cost entering into the planting, including its fair proportion of the overhead costs of the Supervisors' office. For such low cost, however, "THERE IS A REASON," as the Postum people say. The reason is sound business management and the actual working out of planting on this site as an industrial process which can be done cheaper and better by one particular method than by any other. Any one who has ever husked corn knows that there are probably an unlimited number of combinations of motions which will remove the husk from the ear and deposit the ear in the wagon box, but anyone who has husked corn on an up-to-date farm in Iowa or Illinois knows that there is one particular combination of motions by which this can be done with the minimum of effort. A corn husker in that region is a man who husks corn by that method. By any other method he cannot earn the wages of a genuine corn husker. Well, on the Tawas Division of the Michigan Forest, for the type of country in which our planting has been done, our men have tried to work out the one best method. First, you must know that the soil is light, commonly known as Ausable sands. It has a somewhat scanty grass cover with only occasional specimens of jack pine or a few scrub hardwoods. Weeks in advance of the actual planting season a man is employed running furrows through the sections to be planted. A single sod, well turned over, every 8 feet, one way only, that is, no cross sections. When the time comes to plant the boss takes his crew, each planter with his spud or planting instrument, a straight steel, chisel-like instrument with a handle, which he carries in one hand, and in the other his planting stock. The planting is done in the furrows, one year seedlings every eight feet. The planter is taught how to plant. He steps in a certain way to get his spacing, he handles the spud in a certain way, his planting stock are packed and carried in a certain way, he reaches for each seedling in a certain way, places it in the furrow in a certain way, and it is packed into place by formula. So far as possible we are using the same men year after year, reducing the instruction of new recruits to a minimum, and in this way we get results, not merely results as to acreage planted at low cost, but as to high percentage of plant survivals.

You may question the silvicultural wisdom of our wide spacing, 8 by 8, but this has been influenced by several considerations. First, our soil investment is practically nil; second, the Ausable sands are relatively sterile; and third, we have no assurance of being able to employ the help necessary to make the thinnings to release the stand for more rapid growth at the proper time if the spacing were closer. I am going to attach to this letter an estimate of financial returns which I prepared last fall covering our 1924 planting. It is something of a fairy tale, but nevertheless I stand back of it, and I have assured the people of Michigan that when 1974 comes if it is found that I am in error they can hold me responsible. Anyhow, this is the kind of forestry I am trying to preach throughout the country, the doctrine of optimism, not deploring the presence of our devastated lands as an evil but calling attention to them as a wonderful opportunity, the blackened stumps standing as absolute proof that the land is splendidly fitted to produce abundant harvests of valuable timber of known and desirable species. Now that the Commission has increased our purchase area there to over half a million acres we hope to increase our planting on that area to 10,000 acres a year.

If my figures are true then sometime, 50 years or so from now, we should be harvesting from that Division of the Michigan Forest every year not less than 200 million feet of timber worth on the stump not less than three million dollars. From this the County would get each year $750,000, $300,000 would be available for road construction, and the remainder would go into the public treasury. From each year's income the "velvet" in the Treasury over and above planting and administrative costs should more than repay to the Government the sum we expect to have to pay at the present time in purchasing the entire half million acres of raw land.

Yours for making two fine trees grow
where none grew before.

P. Palustris.

(This is the fifth of a series of six letters. The next will appear in an early issue.
EDITOR).

APROPOS OF THE UNIFORM

By O. Fred Arthur, Lincoln.

We sat on the running board of the car, which was parked at the street corner. As the old cattle man smoked his cigarette, he talked of the early days.

He was interrupted by the appearance of two neatly uniformed members of the---Service, who immediately caught his appraising eye. Turning to me, he remarked, "It won't be long until all you Government men are in uniform, and then I suppose the State and County Officials will follow suit. Of course, it is a fine thing to be different; but with the Government leading out in its uniform policy, the time will come when Government overhead will be made conspicuous by the fact that one out of every nineteen people is identified as a Public Officer.

"When we used to ship ten or fifteen thousand head of cattle in a season from Silver, it meant an aggregate of a hundred or so cow punchers. On the evenings of our advent into town, each man gave particular attention to his UNIFORM. He got out his brightest neckerchief, gave his hat the 'Amarillo Twist', stuck one trouser leg inside and the other outside of his boots, in approved style, and burnished up his spurs. Then he was ready for the night's events--identified by the populace as one of the L.C cowboys. As for myself, I wanted to be different, so it was usually my custom to unroll my best trousers, get out my shoes (which really saw but little actual service), go to a hotel and endeavor in my poor way to become a citizen of the town during our sojourn."

"Honestly, Mr. Supervisor, when you find yourself one of a group of uniformed Service employees, on the street or in a public gathering, don't you have the feeling that Mr. Citizen is casually sizing you up and perhaps remarking to his neighbor, 'There's where our taxes go'." The Supervisor guiltily admitted that he had.

TRAIL MARKERS

By Rich Thomson, White River

Considerable thought has been given to the subject of trail markers by all field men, and recently a number of articles have been written condemning the present system of blazing. It seems to be the opinion of practically all of the men with whom I have talked that blazing should be stopped and some other method of marking used. If, as it seems, this opinion is shared by a great majority of the Service members, why can we not decide at once that useless butchering of trees bordering our trails shall stop immediately and close the case as a job well done?

The fact that no other suitable method of marking trails has been definitely decided upon should not for a year or two, or even a day, prevent taking action in stopping an unsatisfactory practice. If instructions were received that blazing of trails must stop and if at the same time a call were sent out for suggestions for a better scheme of marking, it is certain that a worthy substitute would speedily materialize.

A substitute scheme to be satisfactory will have to conform to certain definite lines. Markers will have to be such that uniform use of them throughout the National Forests is desirable. To be most effective they should be conspicuous, easily posted in place and removed, understandable to the general public, and comparatively cheap.

With our trail signs up at all trail intersections or other points giving directions and mileage, posts or rock monuments marking the parks or cow trail maze, I see no reason why just one style of marker would not do for all classes of trails. If a different color scheme were desired for each different class of trails, the same design in marker should be used regardless of the classification of trail. If desirable, appropriate wording could be stamped on the metal markers at the time they are made. Such wording as U. S. F. S. TRAIL, would no would no doubt be worth while.

I believe that a circular disk of metal 3 to 4 inches in diameter, coated on the business side with a bright enamel glaze of one-half white and the other half bright red would answer our purpose just right. Surveyors have been using this color scheme as a target under all kinds of conditions and have found it better than anything else.

One nail hole in the center would probably be sufficient. If the disks were slightly concaved they might be better looking and would set more firmly against the tree. Light weight metal markers well tinned, made so that they will "nest", a sack of nails, claw hammer, and we are ready to go. By all means let us do something, express better schemes of trail marking than have been suggested if they are to be had, adopt one or the other of the ideas and carry it out before next field season.

GOING AFTER BUNCHED LIGHTNING FIRES ON THE CLARK'S FORK DISTRICT

By C. E. Middleton, Pend Oreille

During the past thirty years it has been my experience to witness fires from the Gulf of Mexico to the interior of British Columbia, and I have probably lost enough sleep fighting them to make up for a year's annual leave, but this thing of breaking in on story writing is a new game and not in my line. Since the Bulletin is anxious for a description of the 1926 fire season on the Pend Oreille Forest, I will endeavor to describe the Clark's Fork sector.

The light snowfall during the previous winter was sufficient warning that a bad fire season could be expected, and when the break came none of the protective organization was taken by surprise -- in fact we had been what some might call "sitting pretty" for a period of ten days, while nearly all the adjacent districts had one or more bad fires going.

The advance guard of the lightning storms broke here July 11 at 3:30 p.m. This storm set one fire out about 15 miles from headquarters. The fire was reported at 4:40 p.m. and, in less than two minutes, John Hatcher (a smokechaser) and myself were on our way. Eight miles of the distance could be made with a car, but the fact that it took one hour to cover the eight miles sounds as if we were not very anxious to get to the fire. However, anyone who has ever been over this road would consider that we made good time. The fire was in plain sight from the end of the road and, after filling our water bags, we at once set out on the hard climb up the mountain, reaching the fire just as night was settling down. We found that the lightning had struck a large Douglas fir, tearing a strip a foot wide from the side of the tree and scattering burning bark for a distance of 50 feet.

We had this fire all out by midnight and were just starting to eat some lunch when the next storm struck, and, to make things worse, our light went out about this time. We carried extra carbide, but in attempting to clean the burner in the dark, we lost the small wire which we carried for this purpose. The light refused to burn, so there was nothing to do but sit and freeze until daylight. Two of the worst lightning storms passed while we were waiting, and another one while we were coming down the mountain. Flashes struck the ground all around us, rolling huge rocks and setting four fires that we could see. We were unable to get over the rock cliffs and through the thick jungles in the dark, so we were compelled to sit on the mountain side without shelter or coats until 2:30 a.m., July 12th.

I expected to find the whole country on fire, and was not surprised when we got back to the telephone, where we left the car, to learn that the lookouts had sighted about 20 fires and that new ones were showing up every hour. I also learned that our smokechasers were all out on fires and that a trail crew of ten men was on its way.

Our trail crew and protective organization were all experienced men and familiar with the country in which the fires were burning; this proved to be a big help, as the men were able to hit the fires in the most dangerous places first. I knew more men would be needed, so Hatcher and I returned to headquarters. No one thought of sleep. Hatcher mustered a crew of five men and started up the creek again as soon as he could get the men together. We had 20 men on fires or on the way by 1:00 p.m., July 12th.

The Porcupine fire was the most stubborn one of this lot; one-half of the crew was kept busy for three days and nights packing water, tools, and grub to the other half which was working on the fire. Seven men worked on this fire for three days and nights with only one blanket for the bunch -- they had plenty of blankets at the base camp but the climb was too hard to pack extra bedding. There would have been no chance to sleep anyway; the ground was too steep and the fire was continually rolling across the trench.

We had some busy days, with long hours and little sleep, and the situation was just beginning to look a little better when a new fire started on Trestle Creek, at the west end of the district. All the available men were working on fires by this time, so a crew had to be shipped from Spokane. This fire was reported at about 5:00 p.m., and by 8:00 a.m. we had five men on the fire and 15 more arrived at 6:00 p.m.

We were just getting this fire nicely under control when another fire was started by berry pickers about four miles farther up the creek. At this time there were about 15 separate camps on the creek, with probably 40 people, all told. I was very much peeved over this last fire, as it was a man-caused fire. Fires were burning all over the country and no more men were available, so I tried a little bluff. Starting at the lower end of the creek, I visited every camp, stating that it was up to the campers to either help us fight the fire or move out of the Forest. This bluff worked fine, as nearly all the men and some of the women turned out at once.

Our largest fire, up to this time, covered an area of only 23 acres. Thousand-acre fires were burning on nearly all the adjacent country. We were calling ourselves lucky, and beginning to think about a little sleep when the Antelope fire blew up with a bang. This fire had covered 200 acres when discovered, and two other large fires threatened to burn into the district any day. No use to lose any more sleep now; it looked as though rain was the only thing that would check the large fires. The country was filled with dense smoke; lookouts were useless; objects could not be seen at a few hundred yards; but about this time Colonel Greeley stepped in, giving us new encouragement.

Forest officers began to arrive from all over the United States, bringing with them an army of men and equipment. Everyone knows the rest of the story, but if anyone deserves to be commended, it is surely the lookout men. I had two old men past 60 years of age who stuck to their posts all during the storm, while blue flame was flashing from phone and cables. These men stayed on duty all night and all the next day, until they were satisfied that they had picked up every smoke.

"We, who can hold earth and sky in easy range, live in a few rooms. We are 'kitchen-minded', 'parlor-minded', 'nursery-minded', and 'office-minded', with a weekly excursion heavenward and a few disconnected ideas on politics." -- Charlotte Perkins Gilman, in the Century Magazine.

Service Bulletin

U.S. FOREST SERVICE
(Contents Confidential)

VOL. XI. No. 6. WASHINGTON, D. C. FEBRUARY 7, 1927.

SECRETARY TELLS STOCKMEN FEES WILL BE ADVANCED

(Address of Secretary Jardine before the American National Livestock Association in Salt Lake, January 25, 1927.)

After considering carefully all of the statements made at yesterday's meeting, I desire at this time to announce my decision regarding grazing fees on the National Forests. I am anxious to have this matter settled immediately, to clear the air of controversy and to prepare the way for much more effective cooperation between the stockmen and the Forest Service in dealing with the many problems and improvements where our interests are mutual.

The Department of Agriculture will stretch a point to be absolutely fair to the grazing permittees on National Forests. We have no intention of charging the full commercial values that might be justified by comparison with private lands, or of getting all that the traffic would bear. We want to maintain the social and economic relationships that have always been considered in the allotment and administration of the ranges in National Forests. We don't want to charge anything that exceeds the reasonable capacity of the sheep man and the cow man to pay under the conditions confronting them during the next few years.

At the same time, the Department of Agriculture must be just and fair to all the interests entitled to consideration in the administration of the National Forests. We can not ignore the obligations which these areas bear as public properties, maintained and developed at public expense, and with varied resources which many classes and groups of American people are entitled to utilize or enjoy. Specifically we can not ignore the return which the counties and county schools obtain from the receipts derived from the uses of the National Forests.

It is my purpose to harmonize these two viewpoints or these two obligations of the Department, as fairly as the limitations of human judgment will permit. I want particularly to aid in establishing the livestock industry in such fair relationship to the National Forest interests and public obligations as a whole, that it may have a stable and assured place therein. I believe it would be short sighted and ill advised for the industry itself to sacrifice this security for the sake of some small and temporary advantage.

In line with these various considerations, I have approved recommendations submitted to me today by the Chief of the Forest Service in accordance with which no increases in grazing fees will be made during the present year of 1927. The schedule of fees previously recommended by the Forest Service and by Mr. Casement, which represent material reductions below the original range appraisals, will be put into effect on a graduated scale, beginning with 1928, and extending to 1931. The full rates under this schedule will be applied during the years from 1931 to 1934 inclusive. When these full amounts are put into effect, the average increase in the rate for cattle on all of the National Forests will be from 10.4 cents per head per month to 14.4 cents; and for sheep from 2.9 cents per head per month to 4.5 cents. In accordance with a request of the head of the Forest Service, furthermore, an opportunity will be provided to make further reductions which may be found equitable in adjusting the fees fairly as between the different National Forests and regions and to make adjustments which may be needful to establish equitable fees between the different allotments on each National Forest.

I have also approved the recommendations of the Chief of the Forest Service that in view of the social and economic purposes embraced in the administration of grazing and the interests of the general public in the National Forests, this schedule of fees be established as representing fair compensation for National Forest range under present conditions; and furthermore, this being in my judgment the most important feature of the program, no changes in this schedule of grazing fees will be made for the ten year period beginning in 1935, unless there should be a material change in the conditions existing at that time which affect the equitable determination of fair compensation for National Forest range.

In other words, while the principle of fair compensation for the use of National Forest range is recognized in the interest of all the people of the United States, we will apply that principle in a moderate way, with moderate increases adjusted to the existing conditions in the industry, and with assurance against future changes, unless the present conditions are materially changed. This should set at rest the idea that the Department of Agriculture is out to get all that the traffic will bear.

It is also part of our program to employ the best efforts of the Department to secure ample appropriations for range improvements in the National Forests; and to make a careful study of the practicability of relating grazing fees, in subsequent range appraisals to the current market value of livestock products. I am not yet satisfied that such a method is practicable; but we will give it thorough investigation in order to ascertain definitely whether the value of livestock products in central markets may afford the most equitable basis of range appraisals for future use.

And now let me reemphasize the hope that we may put this controversy behind us and that today may mark a new period of effective cooperation between the agencies of the Department of Agriculture and the livestock interests in developing the full possibilities for usefulness of the National Forest ranges. - From D. 4 Bulletin.

THE BLAZING TRAIL

By Locoed Silas, Holy Cross

MY REQUEST - TO THE SERVICE BULLETIN EDITOR

If your good nature still prevails,
About the subject, blazing trails;
I'd like to give my point of view,
Concerning what we ought to do.

° MY PLEA - TO MY BROTHERS IN SERVICE °

Let's keep it, men, the old blazed trail -
O'er mountain, canon, hill, and dale;
For, in traditions of the West,
Men proved its worth, it stood the test.

For years men trekked these mountains o'er,
Depending on their woodland lore
And this old blaze, to take them back
To where they'd left the beaten track.

Shall we, with signs of cloth or tin,
Destroy the birthright they brought in
And left to us, as heritage;
Because a tree dies ere old age?

° ° MY QUESTION - TO OUR CHIEFS ° °

We have enough and more, of signs,
Already strewn through 'bush' and 'pines',
To fill true woodsmen with desire
To see them all destroyed by fire.

And those, who feel they are bereft
Of every thing their fathers left;
Will they still follow in our track?
A straw once broke a camel's back.

(If still interested, have a 'hump' and continue)

° MY OPINION - TO THOSE, IF ANY, WHO WANT IT °

Though some believe, by blazing trees
We bring to them ,insects, disease;
I've yet to see a tree that died
From any blaze, I had applied.

Some place, perhaps, a few may die,
But, though they do, no man need cry;
And I, quite frankly, say to these,
"Look for the forests, not the trees."

Do they not know that in the hills,
The term - blazed trail - is one which thrills;
And blazes lend to trails, romance,
No other symbol could enhance?

If individual mark we need,
Use paint on blaze, is a good creed,
For that will add to, not destroy,
The old frontiersman's sign of joy.

Some blue, some yellow, red, and green;
"Now isn't that a pretty scene?"
They'll say ,as on they safely ride,
With blaze of pink or mauve, as guide.

° ° MY CREED - TO THE WORLD ° °

I'm just a dreamer, brothers, true,
But I've built trails, and rode them, too;
I'll play my hand just as it lays,
And, sure as hell, my trails I'll blaze.

OUR UNIFORM IS NO LONGER DISTINCTIVE

By Arthur L. Nelson, Colorado

In Fort Collins every bus driver, laundry delivery man, bellhop and some of the others are dressed in forestry green, Norfolk cut uniforms. In other words, they dress the same as the Forest officer in full unifor with the exception of the regulation buttons It is said of a District Office Inspector, while on a trip to our beautiful town that he was asked by one of the bus drivers which one of the company's busses he was driving.

Our uniform is no longer distinctive of the Service and something is needed to make it so. I would not advocate any change in the style or materials now covered by the regulation, but I believe that some insignia should be incorporated and made a part of the uniform. I would suggest an insignia in the following form to be sewed on the left sleeve one inch below the shoulder seam. Regular Forest Service shield of very light green felt with the pine tree in center of very dark green felt and the letters "U.S.F.S." of the same color as pine tree. U in upper left and S in upper right-hand corner and F. S. below the pine tree near bottom of shield. Shield to be same size, or slightly larger than the regular Forest Service badge.

I feel that no one should object to an emblem such as I have in mind on account of conspicuousness, as the uniform is already forestry green and the light green shield with dark figures should blend with the coat material very well.

Every so often someone says something about the uniform in both District and Washington Bulletins, and the majority agrees that if we are to have a uniform, let it be one that is a uniform. I am suggesting the sleeve emblem as one means of distinguishing a Forest officer's uniform from his brother chauffeur's outfit. At present the buttons are the only feature in which the uniform is distinctive and these are noticeable only at very close range.

I wonder how this suggestion strikes the rest of the Service.

ANOTHER BEAVER STORY

By Austin Cary, Washington.

Mr. Mahan's note on beaver in the Service Bulletin for January 10 reminds me of something that happened years ago in Maine, up on the Kennebago River. And mention of the Kennebago reminds me of various other things too - of the half ton of dynamite that blew up in a driving camp one spring and sent chunks of logs, cantdogs, and various other things skittering out onto the lake in front of it and just ahead of me; of the moose that got into our logging works one winter and knocked a horse down; and of that other moose, a big bull, that got stalled in the snow and was baited by the men, one of whom climbed into a leaning tree over him, got hold of one of his ears and pulled it roundly. Some may think the old hand is vaporing when he tells of these things, but I can prove them by witnesses if they are not dead yet. As for the beaver story, the marks they left were seen afterward by no less a man than A. D. Hopkins, then Chief of the Bureau of Forest Entomology in the Department, who called it, what it appeared also to me, a remarkable instance of the intelligence of wild animals.

The fall before, a dam had been built on the falls below Kennebago Lake, and when that was first closed in the spring, flowing back the water, a colony of beaver was evidently flowed out for the first night a bunch of them came down and attacked it. After a little the men there caught on and drove them away; that happened several nights in succession. The beaver didn't really weaken the dam any, but they did enough gnawing at its timbers to show that they had a comprehension of the construction of a man-made dam, what it was that made it hold back water.

This is how that was:- a spillway with removable plank on the upstream side was a feature of this dam, and holding these plank were three or four upright posts in line across the current, each with a bracing timber from downstream, this set against another post fixed into the cross timbering beneath it; there was a cap piece too, supporting a roadway. This was the portion of the structure that was open and could be got at; the rest of the dam aside from the gate was loaded crib work.

Now the beaver attacked those slanted bracing timbers, all of them and nothing else. They went to gnawing away at the corners, at the height convenient for such an animal, and while as just stated they did not succeed in lowering the water or weakening the dam they showed just what they meant to do and their ability if let alone to do it. That's a pretty fair animal story. Who will turn up the next one? Or will somebody start something about fishing?

USELESS KNOWLEDGE

By Aldo Leopold,
Forest Products Laboratory

For many years botanists, wood technologists, and other academic persons have been accumulating observations on the abnormal wood occasionally put on by coniferous trees and known as "rotholtz" or "compression wood." One of the properties of this abnormal wood they found to be weakness. Another they found to be excessive longitudinal shrinkage.

Until recently most practical foresters would probably have classified this research as verging upon the accumulation of useless information; the kind that is "nice to have, makes good reading, but -."

Then came the discovery that aircraft were smashing up because of compression wood in Sitka spruce wing beams.

Now comes D-5 with a timber sale operator who is in a fix because the yellow pine lumber he is cutting on the Lassen Forest is "swapping ends" as it dries. The bowing and warping is found to be due to compression wood. Once an academic pastime, compression wood has become an economic factor in timber sale appraisals.

The next question will undoubtedly be: "How can we select seed or site or conduct thinnings so that compression wood will not be formed? Thus we will complete the typical cycle of forest products research, namely: (1) Needless curiosity by academic persons, (2) useless knowledge by academic persons, (3) unexpected predicaments by practical persons, (4) better forestry.

WALNUT BUYER WANTED

George N. Lamb, Manager of the American Walnut Manufacturers' Association, 616 South Michigan Boulevard, Chicago, in a recent letter to the Forester, says:

"One of our walnut mills is looking for somebody of at least 35 years old to take over their logging department.

"The man should be capable of estimating the contents of a standing tree or intelligent enough to pick it up very rapidly. He would be expected to supervise scattered logging over the wide field in which it is necessary to operate to log one of the larger walnut mills.

"He would need to be a good trader, able to hold his own in buying logs from jobbers or owners and should have sufficient ability to keep lined up a crew of company log buyers.

"The job would pay $225 to $250 to start with. As the man made good, even to a reasonable, degree, he would soon be worth double this amount. If he was exceptionally good, he would be sitting pretty after three or four years of such experience.

"I would appreciate very much if you would pass this word down the line for suggestions as to a suitable man. I imagine that a man considerably younger than 35 years of age, if he had the proper personality and pep, could hold down the job."

A CLOSE RACE

By N. F. Macduff, Cascade

The Ranger of the West Boundary District of the Cascade Forest carries as large a volume and variety of work as has ever been handled there. His work ,however, has been so planned that whenever tools and equipment came into his station, needing repairs, sharpening, etc., or preparation for winter storage, they were promptly put in proper shape and stored in place by the protective assistant and himself, with a little help, so that within two or three days after the last job was finished all of his equipment was stored in shape, ready to go out on the job again next spring - instead of being piled in a heap waiting for two or three men to make a month or six weeks job of repairing, sharpening and storing. His work was kept up currently by use of lists. Whenever he thought of a job that needed doing, he stopped right then and wrote it down in his notebook; whenever he thought of a detail that should be included in written instructions to subordinates he stopped right then and put it down in his notebook. On his return to his headquarters the jobs that needed doing currently were noted, in pencil, on yellow paper, headed "job list for protective assistant." His protective assistant watched that job list like a hawk and endeavored to check all the jobs as completed before Harold could think of some more. It was a close race — closer even than the Scotch!

THE SEVEN DAY WEEK

By Fred R. Johnson, D. 2.

Henry Ford - always in the lead - has beaten the American Federation of Labor to it by announcing a five day week for the men in his industries. He argues that they will do proportionately more work of a better quality in five days than six. More important to him is that the employees will have more time for recreation and personal advancement; they will spend more money for autos, gas and accessories, and this will mean more work for more men.

Be that as it may, its greatest significance to the Forest Service is the suggestion of the desirability of getting away from the practice of putting in a seven day week during the field season. All of us have heard field men say, and usually with some pride, that they have not had a Sunday off for many months. I think most of us have done some boasting along that line. We will grant that there are occasions when Sunday work is perfectly in order, such as when out on pack trips, or when the taking of Sunday would simply mean more work for the Ranger's wife or some accommodating rancher in cooking for several heavy eating Forest officers. Then there are such occasions as an occasional Sunday fire or some other emergency.

Is it not true, however, that more often the emergency does not exist, but men from the Supervisor and District offices dread the idea of a Sunday in an uninteresting village, so out we go taking the Ranger from his family. Quite often the Sunday work could be avoided, if some attention were given to planning trips and they are not started near the end of the week.

In the long run what do we gain? Would we not be better off to take a little time on Sunday for reflection while in the field, instead of rushing through on a schedule which calls for field work daily from sunrise to sunset and office work every evening. Sometimes I fear we rush through our trips so rapidly that we do not see the forest on account of the trees. Later when we get back to the office and have time to think over our trip, many points occur on which more information would have been desirable.

Some years ago an Assistant Forester, now a prominent State Forester of one of the Eastern States, came in upon me expectedly one Sunday morning while on the Nebraska.

He apologized for taking me out on Sunday, stating that he had always made it rule not to interfere with the Sunday plans of field men. He referred to a talk given by his college president years before in which the president advised the boys to take off their red sweaters and corduroy trousers (the prevailing college garb of that day) on Sunday, put on clean shirts and white collars, go to church or do something different from their daily routine. They would be able to do better work if they followed this practice.

The Assistant Forester stated that since entering the Service, he had tried to follow that advice, even though stationed at a back woods tie camp. It took his mind off his work and gave him renewed vigor to tackle the next day's problem, whether it be marking timber or inspecting sales.— Clipped From D. 2 Bulletin.

THE "PIONEER SPIRIT"

By Wm. La Sater, Fremont.

At 10:30 p. m., on the 19th the phone rang, and the party at other end of the line stated that a young baby of Mr. Earl Small's was very sick, that Mr. Small was at Sican (riding for horses) and his young wife was alone with 3 children, and wanted word phoned to Mr. Small to return home. The phone line had been broken by heavy winds. I volunteered to go for him, but was informed it was not necessary as others were also willing to go(and were ready to start).

It is 30 odd miles, roads badly drifted with snow, and 10 degrees below zero! Messrs. K. O. Buick and L. Linebaugh (stockman and merchant) made the trip. Several hours were required to make it. Snow to shovel, and some difficulty was had with the car breaking through ice in creeks and swales! However, Mr. Small was found and returned with Linebaugh (about 6 a. m.). Mr. Small then took the infant to Bend to a doctor (85 miles). It proved to be a bad case of pneumonia.— From Six Twenty Six.

CEDAR BLOCK MASONRY

Northern Minnesota settlers are making buildings, particularly barns, out of cedar blocks laid in lime and sand mortar."

DR. SCHENCK TO GUIDE EUROPEAN TOUR

Dr. C. A. Schenck has agreed to guide the fourth annual tour through the continental forests of Europe.

Students from all forest schools as well as graduate foresters or lumbermen are invited to join the party up to a limit of twenty-five men, leaving New York, Thursday, April seven.

The trip will cover reforestation work of Holland, the managed forests along the Rhine, in Saxony and Prussia, and in Switzerland and France. Students party will return early in June.

Persons interested should get in touch with Dr. E. A. Ziegler, Penna. State Forest School, Mont Alto, Pa., or Dr. C. A. Schenck, School of Forestry, Missoula, Montana."

BELLEVUE-SAVANNA TRANSFERRED TO DISTRICT 2.

By C. G. Smith, D. 7.

The Savana National Forest in Northwestern Illinois with a net area of 10,710 acres, was created by Presidential proclamation on June 5, 1925 at the instance of interested local communities, and the name was changed to Bellevue-Savanna National Forest on June 15, 1926. This forest has been transferred from District 7 to District 2 as of January 1, 1927. An economical administrative arrangement has been perfected, whereby Mr. W. T. Cox, Superintendent of the Upper Mississippi River Wild Life and Game Refuge, with headquarters at Winona, Minn., has been designated as the active representative of the Secretary of Agriculture in carrying out the terms of the joint agreement entered into by the Secretaries of War and Agriculture under the authority of Section 9 of the Clarke-McNary act of June 7, 1924. This area will be administered as a combined game refuge and National Forest with suitable participation in fish rescue work by the Bureau of Fisheries. The forest resources of this unit are confined to the overflow and savanna lands along the Mississippi River where there is a good stand of Mississippi River hardwoods which are in need of improvement cuttings. The determination to transfer the Bellevue-Savanna National Forest to the administrative control of District 2 was decided upon by the Forester for the reason that it appeared that such forestry work as was necessary by the Service could be most economically handled by the Rocky Mountain district.

THE SEED THAT PRODUCES THE TREE

By Leo A. Isaac, Pacific Northwest For. Exp. Sta.

A good stand of young trees obtained naturally from seed of the forest that is now being removed, does much to scare away the bugaboo of compound interest in the timber growing business. Such stands of natural reproduction are not always found after logging in the Douglas fir region. Why it occurs on one area and is missing on another is a problem which has long baffled the forester and timber-land owner.

The first logical step in studying the principles of natural reproduction is to determine the source of seed from which it springs. Repeated attempts have been made to answer this question by theoretical reasoning, philosophical discussion, and opinions derived from field observations, only to have it bob up again for settlement in that court of final appeals - "actual measurement." The two chief theories advanced to account for natural reproduction on logged off lands are that seed is stored in the forest floor and survives the slash fire, and that seed is carried by the wind from adjacent bodies of green timber.

How much reproduction comes from seed stored in the duff and how much from wind disseminated seed? The Pacific Northwest Forest Experiment Station is determining, by actual count on the ground, the seedlings springing from these sources. This is done by means of screened plots put in on the hot ashes of slash fires.

These plots are established in groups of three. The first, protected against birds and rodents by a coarse screen cover, has also an inside tray of fine screen to catch all seed from outside sources. The seedlings occurring on this plot will be a positive measure of reproduction from seed that remains viable in soil burned over by a slash fire, because the area is screened against all outside sources of seed. The second plot, similar to the first except that it has no tray to catch the wind-blown seed, furnishes a measure of reproduction from seed stored in the soil plus wind-blown seed. The third plot of the group is similar to the first two in size but is left in its natural condition to serve as a check area. The reproduction on this unscreened area will be the natural germination from all sources of seed when not protected against birds and rodents. The amount of seed destroyed by birds and rodents can be determined by deducting the number of seedlings on plot 3 from those on plot 2, the screened area.

Through the courtesy of interested lumber companies who have offered the use of their lands, groups of plots have been established in various parts of the Douglas fir region. In a very few years this experiment will show positively the amount of reproduction that comes from seed stored in the duff and from wind disseminated seed; it will also give a measure of the seed destroyed by birds and rodents.

LOOKOUT LOVER. "My fair one, you reign supreme in my heart. Without you all would be dark and dreary. When the clouds gather and the snow and hail beat upon me, then I think of you. Then come the warm eastern winds, the hot sun, the low humidity, the dry storms, and through the haze and clouds, I see your love shining bright and clear! My rainbow!"

Ranger's Daughter. "Hey, is this a weather report, or a proposal?" -- From Six Twenty Six.

ONE FAMILY OF LIONS LESS ON THE DATIL.

The Evans Brothers of Beaverhead were recently called on for help in catching a lion on Elk Mountain, about 80 miles southwest of Magdalena. They found the trail of the lion about a mile south of O Bar O Ranger Station just after a fresh fall of snow. The tale of the hunt is interestingly told in a recent Datil Bulletin. Their hounds were put on the trail and were able to follow it with little difficulty. The lion was overtaken at the carcass of a freshly killed deer. The dogs soon put the varmint up a tree and it was shot. About 50 yards distant was another deer which the lion had killed at about the same time. Both deer were whitetail bucks. The lion was a female and it was seen that she had a family of young ones, so the hunters took the back trail and followed it to a den in a cliff of rocks, where they found three lion kittens, about the size of grown house cats. They captured the kittens alive. The little fellows quickly learned domestic habits and eagerly took milk from a nipple on a bottle just as any other baby creature. Lion kittens taken at that size make most cunning pets and are playful and gentle until they approach maturity, or when about two-thirds grown. Then, they become rough and are easily angered. It is estimated that each lion kills an average of fifty deer per year, and they are equally disastrous to cattle and sheep. They like fresh, warm meat and seldom take many meals from a single kill. It seems to be their nature, even when not hungry, to kill for the sake of destroying; and they have been known to kill as many as a dozen sheep from a flock in a single night, probably eating from only one carcass. The Evans Brothers are owners of the well known Slash Ranch at Beaverhead. In addition to looking after their extensive cattle interest, they keep a pack of well trained hunting dogs; and spend a part of their leisure time each year at the exciting but fascinating sport of lion and bear hunting.-- District 3.

Service Bulletin

U.S. FOREST SERVICE
(Contents Confidential)

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FORESTRY - SUNNY SIDE UP

(From address by Mr. E. A. Sherman, at Annual Banquet of the American Forestry Association, New Haven, Conn.)

I want to talk to you about conservation, sunny side up; of new forests and new plans, new hopes and new ideas; new recruits and new armies; of flowers blooming by our pathway, and diamonds hidden in the gravel scattered before the kitchen door. In other words, I want to talk to you about forestry as an opportunity as well as a responsibility, as a form of recreation as well as an occupation, as a pleasure as well as a problem, as an activity promoting social betterment and economic life as well as a preventive of social suicide and economic death.

For long years past we have bewailed our wasted forests, our idle acres, our silent mills and abandoned towns, the rapid diminution of our remaining forest resources, the blindness and stupidity of our national carelessness with fire, the deaf ears of the nation that slumbers comfortably oblivious to the cry that the rapids are below.

We have preached the curse of wasted resources, blackened stumps, barren lands, silvicultural hellfire, and economic damnation generally. The dark side of the picture has been oversold. I want to urge upon you that henceforth we preach the gospel of new and better forests, the resurrection of the landscape beautiful arising from the ashes of the landscape desolated, the economic salvation of industries permanently blessing a permanent population with money in the bank and confidence in the future. Our situation is no worse than that which every other nation has had to face or must face in the future. And happily we have riches in men, money, intelligence, and vast areas of wonderfully rich forest lands with which to face them.

Make the purchaser realize that he is actually investing in a colt the child can ride to school and that when mature the son can work in the field; and picture to him how in his mellow years he can hitch old dobbin to the shay. Instead of bewailing the fact that it costs money to protect forests and costs money to plant new trees, and that all this expense might have been avoided, let us emphasize the fact that by the expenditure of only a relatively small amount of money we can have cheaper and better homes, finer streams, better fishing, better hunting, a more hospitable climate, a more attractive landscape.

"A hundred years ago this nation was a handful of people in a continent covered with timber. Today, we have a handful of timber in a continent covered with people." --
Representative Kemp of Louisiana.

NO FIRES, MUST HAVE EXCITEMENT

By Bill Clark, Cleveland

We noticed that the driver of a car ahead was having trouble to make the road keep in front of his points of the compass. We followed him for some distance while he ran three cars off the road in succession. Finally, after he seemed to be unable to stay in the road at all, I ran up behind and pulled the siren open. The driver evidently thought I wanted him to park his car in the Chrysler, anyway he came over, car and all, and took off a hub cap. After quite a hot argument, I asked him what brand he was using. He seemed to brighten up a bit - "Hic! Want a drink?" He said. "Sure, let's see it." He raised up the hood of his car and pulled out a bottle. I took it and started to put it in my car when he staggered over and said, "Here, take this one. I gave you the wrong bottle." Well, I took them both.

After maneuvering them around in the road for some time, I got them headed back to Corona. I locked the car in the garage and held them until the morning. We got the Judge out of bed at 9:30 a.m. It being a holiday, he was in a very poor mood. After I stated the case and damage to my car, the Judge shouted $6,250. or go to jail". The prisoner looked stunned and tried to say something. "Spit that gum out of your mouth, and maybe you can talk, "yelled the Judge. You may be sure he disposed of the gum at once. After the Judge cooled down and the poor devil told him he was a property owner in the County, the Judge suspended all but $200.00 cash or the car. However, we have the car yet and I'll tell you the rest of the story next time. If we have to get the Judge out of bed for the trial, I'm afraid this poor fellow may have to go to the rock pile for some time. Boys, never use hair tonic and automobiles together.

"The ranger job in the Forest Service is as big as a man makes it and he gets out of it what he puts into it."

USE OF BEATTY TRAIL GRADER ON ROAD WORK

By W. P. Stephenson, D. 1.

The Beatty grader was given a thorough test during the past season on the Clearwater Highway, Breakfast Creek Section. This road extends through heavy timber, chiefly white pine and cedar. The slopes range from a few per cent to 100 per cent. The soil is alluvial, fairly free from rock on the surface but on digging down large boulders were encountered.

On account of the choppy topography this was chiefly an end-haul job where the dirt had to be drifted with fresnos. This work was done with two horse fresnos which have a 3½-foot cutting blade and weigh 375 pounds.

On slopes of from 40% and up, it was desirable to have a trail at least 3 feet wide in order to give the team footing and to give the fresno holder a fair chance. On slopes from 40 to 70% the procedure was as follows: the slope stakes were set back 3 feet and in their place were set temporary stakes as guides for the plow. A small type of road plow a (No. 7 Western) provided with a knife coulter. This plow was drawn by one horse weighing 1600 pounds. One man led the horse and followed the row of temporary stakes, while the other man handled the plow. By so doing, the stakes were accurately followed and there was no chance of losing the curves on the finished road.

By placing the nose or point of the Beatty grader with long blade in the furrow made by the road plow, a trail conforming to the spread of the grader (about 3 feet) was made with from one to three trips, depending on the nature of the soil. To widen this trail another furrow was plowed 8 inches from the outer edge. The nose of the grader was again placed in the furrow and the dirt crowded down the hill. By repeating this process, starting each time at the top, a trail of the desired width to accommodate teams and fresnos was made.

On slopes from 70 to 100%, the procedure was the same except that due to the steepness it was found desirable to first make by hand a trail 6 inches wide following the line of temporary stakes. This was necessary to give the horse footing.

The use of this grader on road work was entirely experimental. At first it met with considerable opposition from the workmen but by continued use they were more than convinced of its merits as a road-making machine. It was by trying the various ideas offered that the above procedure was decided upon.

After this test it is felt that the Beatty grader is a necessity for opening up new work on steep hillsides where conditions are such that it can be used, whether it be contour work where the material is all crowded over or on an end-haul job.

"JUNIOR FOREST RANGER"

Wisconsin is gradually becoming interested in a new crop for the 12,000,000 idle acres in the northern half of the State, and farm boys in the northern counties are being organized into junior forest rangers. Tree planting demonstrations have been held in 16 counties under the direction of the extension forester.

Work is divided into orders and any boy between the age of 14 and 20 may become a member. Clubs are to be organized in localities where five or more boys wish to undertake the work. The first order is that of the FOREST CRAFTER, in which the boy must learn to identify trees and become thoroughly familiar with forest practice.

In the second order the boy must be a PLANTER and gain actual experience in planting trees. He must also be a FOREST PROTECTOR and cooperate with the forest fire fighters in the State.

To join the third order, the boy becomes a WOODSMEN, and when he joins the fourth order he becoms a CRUISER. - District 6

ANOTHER LOOKOUT PATRIARCH

By R. L. P. Bigelow, Tahoe

I note in the District News Letter that the Modoc is claiming they possess the patriarch of Lookouts in the Service. The Tahoe begs to differ with the Modoc and claims that Benjamin Franklin Howe of Banner Lookout holds the banner for the longest period of service at one Lookout.

In June, 1911, after the bad Tahoe fires at which we had two companies of soldiers from the Presidio, we felt it necessary to have a lookout service. Banner Lookout was visited on Washington's birthday in 1911 and it was then decided that this peak would make the best lookout for the hazardous fire country of the Tahoe. A wooden tower 40 feet in height was built and Howe was placed on this lookout on July 1, 1911. He has worked each summer continuously from that date.

The timber around the old lookout has grown so fast that it became necessary to build a new steel lookout this year. A 60-foot steel tower was constructed last spring and Howe can now boast of a first class standard tower.

Howe, in his 16 years of Lookout service has been "Johnny on the Spot." and reports the fires 1, 2, 3, as fast as they come. He is also an old timer in this region and is in his seventies.

The Tahoe is proud of the distinction of having a lookout with such a long and excellent record as Benjamin Franklin Howe.

WHO SHOULD DO RANGE RECONNAISSANCE?

By R. R. Hill, Washington.

Should reconnaissance be handled by specialists or be undertaken widely by administrative officers? This question continues to be raised after sixteen years of reconnaissance work. Many contend that, because of the small personnel of grazing specialists and because reconnaissance is undertaken merely to aid in administration, it should be done by administrative men so as to complete the range survey work within a reasonable period and so that the data secured and the plans developed may be entirely practicable and intelligible to the men who must apply them. There is no question about the desirability of these objectives nor is it contended that reconnaissance is a type of work that can not be mastered by the average administrative officer. However, the amount of training required to handle certain featres of reconnaissance, particularly the making of uniformly accurate forage estimates, is such that the average ranger can not undertake it without being relieved of his administrative duties. Estimating forage values in terms of forage acres is difficult because it requires an intimate knowledge of plants and the extent to which they are grazed as well as persistent drilling and practice in estimating density and composition of types. Unless these estimates assign definite values to forage plants such as can be expressed in terms of forage acres they do not furnish the accurate basis fordetermining proper carrying capacity and proper distribution of stock within management units, which is an essential of reconnaissance, but partake of the character of general estimates secured in connection with inspections. If it were essential in all cases for the ranger to make forage-acre estimates in order to develop good management plans,- which after all is the whole purpose of reconnaissance,- then it might be advisable for each ranger to become a specialist in that phase of the work. But it should be made plain that management plans adequate to materially improve grazing conditions may be developed without the use of forage acres. The preparation of such plans is work that the local administrative officers, because of their intimate knowledge of grazing conditions and problems, are particularly well qualified to handle. This work is a part of a major program that is occupying the serious attention of the western Districts and has a high priority. There are many ranges where the problems are so involved that the kind of management plans being developed by local officers will not adequately meet the needs. But there are no ranges where conditions are so bad that these plans should not serve as the basis for greatly improving management. In complicated cases the advocates of reconnaissance by specialists would favor developing plans based upon available knowledge and supplementing them by plans based upon reconnaissance data as soon as practicable. A method has been proposed by Paul B. Lister of District 2 which seems to offer an acceptable compromise between the plan of restricting reconnaissance to special crews and that of having administrative officers generally handle such work in projects where it is not feasible to have the work done by special parties. Under this method the Ranger would prepare type maps, collect data regarding proper management units, seasons, range improvements, utilization, grazing problems, etc., but would not estimate the density or composition of the forage. This latter task would be handled by a reconnaissance specialist who would be enabled to estimate by large types rapidly since the maps would be already prepared. The Ranger and the reconnaissance man then would use the combined data in developing management plans. This arangement would obviate the main objection raised against reconnaissance only by specialists because it would speed up the work as much as possible and because the joint responsibility shared by the administrative officers and the reconnaissance man would provide for the most practicable type of management plan. At the same time it would meet the chief objection made against reconnaissance conducted by administrative officers because it would provide for uniform estimates of forage values by a specialist.

The application of the plan just discussed would pre-suppose that reconnaissance specialists would be available to assist the local administrative officers in collecting data and developing management plans. Such specialists could be drawn from tho men trained in the regularly organized reconnaissance crews which would concentrate their work on forests where the grazing problems are most complicated.

LOVERIDGE GOES TO WASHINGTON

District 3, already a heavy contributor to other Districts and Washington office, has again been levied upon to fill an important post Coincident with Kircher's transfer to Forest Management the following personnel moves will be made about March 1:

Loveridge will go to Washington as Forest Inspector in Operation. His Service career started with his appointment as forest guard on the Superior National Forest in 1911. In 1913 he entered D-3 on the Florida Forest and transferred west as Forest Assistant Ranger on the Arkansas, Apache, and Carson. Since that time he has gone steadily up through the grades of Forest Ranger, Deputy Supervisor and Supervisor to his present position in this office. This wide range of experience, coupled with his forestry training at Penn. State, will stand him in good stead in his new job.

Supervisor Stanley F. Wilson will replace Loveridge as District Forest Inspector in Operation.

Assistant Supervisor Dwire will be promoted to the Supervisorship of the Carson.

(Note: D-3 is now on a sustained yield of Assistant Branch Chiefs for the Washington office, having previously contributed Kircher Marsh, and Shepard.)

HITTING ON HIGH

By Roy Weeman, Chelan

During a lightning storm on the Chelan in August, the McGregor Mt. lookout house, while still under construction, was hit by a bolt on the corner of the tower. From there the charge ran down the 4x4 supporting the tower, splitting it into splinters and cutting it off above the guy wire. The metal shingles along one corner were also thrown in all directions.

In running down the guy wire, it exploded a 600 lb. boulder to which the cable was anchored, then jumped to the drag line on the 1400-foot double tramway cutting the drag line off at each place it ran through a block. This allowed one carriage to run to the bottom of the tram which demolished it and let down one standing line, one-eight mile of telephone was heated to a high temperature and left with a kink in it about every six inches.

The carpenter working on the house and the lookout were at their camp one-half mile below the lookout house when the bolt struck. The telephone was unhooked and the boys were getting supper when the carpenter was knocked unconscious for about twenty minutes, receiving a burn as large as a dollar on the top of the head and many small burns on the bottom of the feet. The lookout was not injured due to the fact that he had rubber shoes on with no nails in the soles. Both the lookout and the carpenter were at least ten feet from the telephone line.

The cook at the road camp, eight miles away, was talking over the phone at the time the bolt was released. He was knocked unconscious for a couple of minutes, receiving burns on the cheek, arm and feet. He was about to report rain in that locality when hit.

LONGHORN CATTLE FOR THE WICHITA

Through the efforts of Assistant Forester Will C. Barnes, supported by Senator Kendrick, who was especially interested in the project, an item of $3000 has been included in the Agricultural Appropriation bill for the purchase of some longhorn Texas cattle to be placed in the Wichita National Forest and Game Preserve. In arranging to preserve a few specimens of that unique animal in the history of livestock in this country, a special effort will be made to get the most satisfactory examples of the breed. - District 2.

PAINTING BRANDS IN THE EARLY DAYS

By Will C. Barnes, Washington.

A short time ago the D-3 Bullitin mentioned further experiments with marking paint for identifying cattte covered by range counts. This scheme was first tried out on the Datil about ten years ago. One of the big paint companies perfected a waterproof paint for us which was satisfactory. It would shed off, of course, when the old cows lost their hirsute covering in the spring but it lasted as long as was necessary.

All this brought to my mind an early use of paint for identifying range livestock. From 1888 to 1892 Potter and I drove our saddle ponies every fall from our ranches near Holbrook, Arizona, to a point on the Grand Canyon north of Williams, Arizona, -- about 200 miles. Here we wintered them on a flood water reservoir constructed on a wash running into the Supai Canyon, a branch of the Grand Canyon. It was a dandy country for grass. We had no neighbors for 50 miles except the Supai Indians and we could keep all other stock out by fencing up the water and letting the horses through gates each day. We had about a hundred and sixty-five first class cow horses. We lost some good horses the first year by their getting tangled up with the wild ones. They were also bound to stray some and as the two men we meant to leave with them were new to the range and the horses, I conceived the idea of painting a big brand of some kind on the hip of each horse as a ready means of long distance identification.

We decided on two colors, white and red, as best adapted to our purposes. Ready mixed paint wasn't to be had at that time and it took a ride of seventy-five miles with a pack horse to get the raw materials at Williams. When we came to do the job we found the horses were already wearing their long winter coats and it was almost impossible to do a good lasting job through such a thick covering.

Then came a happy solution. We did our own hair bobbing in cow camps in those days, and one of the boys had a pair of patent hair clippers in his war bag. Armed with this little tool a place about a foot square was mowed clear of hair on the left hip of each horse, the clippers being run just as close as possible to the hide.

Then we painted a big X on this cleared spot which loomed up on them like a Broadway electric sign on a dark night. When we were done there was more paint on our hands, faces, and clothing than on the horses. Our boys had no trouble in picking out the horses they were responsible for, and the paint stuck most of the next summer and created a lot of caustic comment among the old timers on the Holbrook ranges who felt such a scheme was a lowering of cowpuncher ethics and a reflection on their ability to read brands at any distance. We rather prided ourselves on having originated the idea, but last summer while reading John Clay's book "My Life on the Range" I discovered he did the selfsame thing to a bunch of range cattle he bought in Wyoming as far back as 1878. There's surely nothing new under the sun.

BROMIDES

We name one question uniform
It leaves some hot and others warm,
It is a subject most outworn -
The uniform.
The thing is most ubiquitous,
We cuss and cuss and then discuss,
And always it's the same old muss -
The uniform.
Oh, dress us up as Gunga Din;
The poor benighted Hindoo
Who didn't need a Stetson hat,
For pants he made his skin do.
No need had he to careful be
Of whipcord most expensive;
Of cold and chills and tailor bills
He was not apprehensive.
He didn't need a doodad on
His bosom or his collar
To show his rank so some darn crank
Could make an awful holler.
So as for me, I'll quiet be
Until the answer's plainer,
And Levi Strauss and Monkey Ward
Will be that much the gainer.

— Robin Adair.
Clipped from D. - 5 Bulletin.

LOOKOUT TOWER

Is "fire control" a satisfactory substitute for the much berated term "fire protection"? The chief connotation of "fire control", it seems to me, is to STOP fires after they start, whereas our ideal is to prevent them from starting. The term is by long usage so strongly intrenched in this association that it is doubtful if it can be popularly broadened to include prevention, except by an academic and liberal stretching of its direct meaning.

After all, is "fire protection" as bad as it is painted? It has perfectly good analogies well established in daily usage - and that is the only ultimate and final test of "correctness." It is objected that "fire protection" implies PROTECTING FIRE, but this objection surely puts a low valuation on the common sense of the genus Homo. Fire insurance does not insure fire, accident insurance does not guarantee an accident, nor will hail insurance insure a hail storm. Police protection doesn't mean protecting the police, nor does typhoid innoculation innoculate the typhoid but the potential victim. Our naval defences do not defend the navy (except incidentally), a sunshade does not shade the sun, a fireguard doesn't guard fire, a windshield doesn't shield the wind, a mudguard doesn't guard the mud, a - but hold, enough!

There is nothing more difficult than uprooting these established short-cuts of speech, particularily when they passably serve their purpose; and probably the short-cut "fire protection" comes nearer to saying what we mean than any other possible term. - W. S.

FORESTRY CLUB DEMONSTRATION

Denver has recently been treated to an entertaining series of demonstrations on forest planting, presented by the Forestry Club of Howard, Colorado, before the Lumber Dealers Association, the Chamber of Commerce and several of the high schools. This demonstration covers the field of forest planting from the gathering of cones to the care of trees in the farm wood lot or windbreak, and is presented by two boys who have, in addition to studying out the methods involved in all the processes, made all the items of equipment necessary to do this work on a small scale, especially for farm planting.

The work of the Club is under the State Extension Forester. As a result of the demonstrations a number of large orders for trees in the Clarke-McNary cooperation were received by Extension Forester Lee.

THE LOW DOWN OF SURVEYING

By A. G. Jackson, Siskiyou.

I've done quite a bit of surveying out in the open and have been in places where progress was difficult, but I had a new sort of surveyor's thrill recently when I ran a little line under ground at the Oregon Caves. Dick Rowley, Richard Sabin, and I spent three hours beyond the Death Chamber in the Caves where surveying conditions were considerably different than anywhere else I'd ever been. Equipped with acetylene lights, steel-tape thumb line and compass, we threaded some of the least traveled parts of the caves, sometimes walking erect, oftener half bent, and sometimes prone on the limestone, making our way by walking with our elbows. There was no chance to use a tripod or a Jacob's staff, so we rigged up a little standard about ten inches high to support the compass. The first shot was from a point previously established by Rowley. The course was 14 feet from compass to plumb line, which was let down from top of a well 39 feet above. It took us about 10 minutes to work our way through the various passages and wiggle holes to the top of this well. And there were more wells and passages ahead. I thought of Christopher Columbus, Henry Hudson, and Old Man Baffin seeking a northwest passage to India and felt a little of the explorer's thrill, for we were seeking not a northwest passage, but a southeast passage to the outside world. We didn't find it that night, and the platted lines inside and outside the Caves do not come together, but we still have hopes. Both the inside and outside lines will be extended, and who knows? - they are headed toward each other now and may come close enough so a little opening up of the passageway may unite them. Dried mud was spread over the limestone out at the far end of the inside line and a number of bones, probably belonging to defunct bears were found, which encouraged us to think we were at least approaching the surface by way of an opening large enough to admit a bear. A wounded bear showed Elijah Davidson the way into the caves back in '74. Perhaps the bones of a dead bear will show us another way out. From Six Twenty -Six.

And the forest still reaches out and twines itself around our deepest spiritual truths: home - birth - love - prayer - death; it tries to overrun them all, to reclaim them. Thus when we build our houses, instinctively we attempt by some clump of trees to hide them and to shelter ourselves once more inside the forest; in some countries, whenever a child is born, a tree is planted as its guardian in nature; in our marriage customs the forest still riots as master of ceremonies with garlands and fruits; our prayers strike against the forest shaped in cathedral stone - memory of the grove, God's first temple; and when we die, it is the tree that is planted beside us as the sentinel of out rest. Even to this day the sight of a treeless grave arouses some obscure instinct in us that it is God-forsaken. From "The Bride of the Mistletoe," by James Lane Allen.

SEA PLANES IN THE BUSH

(From "The Burning Bush" by Courtney Ryley Cooper, in the Saturday Evening Post of November 13, 1926)

Eerie things, these flying boats, passing over the deeply wooded districts of the bush country; but comforting things nevertheless, for they have done marvelous things in the brief space of time in which they have been in operation. The North Country is peculiarly situated. Bush and lakes, lakes and bush, each seeming to vie with the other as to which can occupy the most territory. Therefore, incongruous as they may appear to one in the fastnesses of a forest, these sea planes operate far more effectively than land planes could operate, even in prairre country. There is always a landing place for them adjacent to the point they desire to reach -- so numerous are the bodies of water, even as far inland as the Manitoba line-- with the result that both Quebec and Ontario, representing the bulk of the Eastern Canada bush country, have turned to them not only as the eyes of each respective province in the matter of fire patrols but for actual fire fighting as well.

True, they are expensive; but so are fires. True also that they never can take the place of ground force. But they can do this: They can fill the place of 100 men per plane, and they can cover ground especially in the tangled wilds of Northern Ontario and Quebec, in a matter of minutes, where fire fighters depending upon slower methods of transportation, might fail entirely. And those who argue for the increase and building of this form of fire-fighting apparatus insist that the old rule of an ounce of prevention being worth a pound of cure still holds good.

In 1924, for instance, twelve planes were installed in Eastern and Western Ontario for the purpose of patrol and actual carrying of fire-fighting equipment. It was June before the squadron was complete, leaving about 100 flying days for the season. But in that time 600 fires were spotted from the air and reported upon immediately * * *.

One morning, for instance, a plane started fourth from its base at Sioux Lookout, in Western Ontario, bound for its patrol duties of the day. Within a short time it was back again, its personnel shouting for equipment. Men and pumps were loaded into the cockpit, the engine roared and the machine was away again. That night a report was turned in that this machine had discovered a blaze upon an island, some twenty miles from its base, dropped to the lake, learned that Indians had set fire to the bush there that the burned-over ground might in later years yield blueberries, set those same Indians to work fighting the flames which they had caused, returned for equipment and men, loaded it, raced for the fire and had completely extinguished it, all within forty-five minutes!

Service Bulletin

U.S. FOREST SERVICE

(Contents Confidential)

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HAIL AND FAREWELL

Paul G. Redington is leaving us on February 16th to become Chief of the Bureau of Biological Survey. The following interchange of letters makes editorial comment superfluous.

My dear Colonel Greeley:

In a short space of time I will be "exiting" (as the ranger said of the Dendroctonus beetle) from the large family, dwelling happily within the galleries of the Forest Service, to take a short flight which will land me in another branch of the public service.

No one will misunderstand me when I say that the change in occupation arouses a mixed feeling of regret and anticipation, the latter tinctured with speculation. The regret exists because the change entails a severance of direct association with the people of the Service - an association that to me at least has been a very happy and fruitful one, leaving indelible and cherished memories.

The change arouses anticipation, because of the surety that I will be engaged in a work akin to forestry (1) in principle and (2) in its public service aspect. The tincturing element of speculation naturally enters because of the uncertainty of the location of the rocks in the river down which I will paddle my canoe.

Forestry and the management of wild life intermingle in many ways, and the experience which the Forest Service has given me during the 22 years it has suffered my appearance on its pay roll will be invaluable to me in the Biological Survey. In the responsibilities that come to me in my new position, I shall try within my limitations to bring closer together these two great interests.

I am indeed happy in the realization that my work will keep me in close touch with the members of the great organization of which you are the head. I wish for it and you and them a continuation of the joy which comes from work well done.

More personally, I want to record my very real appreciation of the splendid leadership you have given to forestry and the Service and to tell you how much satisfaction and inspiration I have derived from working with you.

Sincerely,

PAUL G. REDINGTON

My dear Redington:

I am acknowledging your letter of February 10 with a decided mixture of feeling. You will leave a large gap in the Forest Service, where your work for the past twenty-two years has been of an outstanding character. It will be a hard wrench to all of us to have you go. I had anticipated in your recent assignment to Washington that your leadership and ability would find a further and large opportunity for helpful and effective work for many years to come. We will all miss you greatly, both in your own field of Public Relations and in your stimulating and helpful counsels in all phases of Service endeavor.

On the other hand, we are all glad to see the opportunity given you in connection with the work of the Biological Survey. We are glad to have a member of the Forest Service given this recognition. We are glad to see the mutual interests of wild life and forest conservation confirmed and emphasized in this way. And we know that you are stepping out into a larger opportunity for work in a field which has been and should be closely identified with the aims and purposes of the Forest Service.

So, while I accept your departure from the immediate circle of Forest Service workers with reluctance, it is with welcome and appreciation of the recognition which you have received and of the opportunity which has been offered you. We all wish you Godspeed; and offer you and your associates in the Biological Survey our warmest wishes and our hearty cooperation..

Very sincerely yours,

W. B. GREELEY

Forester.

To relieve the gloom of Redington's going, after his 22 years' sojourn with us, it is a pleasure to announce the return of our old friend Major R. Y. Stuart, as head of Public Relations. Stuart entered the Service in 1906 and after various assignments in District 1 came to Washington in 1912, where he served until 1920 (with the exception of about 2 years in the military service). Leaving in 1920 to become Assistant Commissioner of Forestry in Pennsylvania, he succeeded Mr. Pinchot as Commissioner when the latter became Governor in 1923. With this irresistible combination, Pennsylvania has made great strides in forestry, with its $25,000,000 bond issue to buy state forests, its splendid state-wide system of fire lookouts, and its enormous forest nursery now turning out 20 million forest seedlings a year. Major Stuart's large experience in administrative, technical, and public relations work amply qualify him for his new work, and the entire Service will welcome him most warmly back into the fold.

WHAT IS YOUR FOREST WORTH?

By Fred Morrell, D. 1.

Some one is always putting valuations on the National Forests. No one pretends, of course, that he can do it accurately, but it frequently becomes necessary for the Forester and others to use the best figure they can get, because some figure is demanded.

Recently I wanted to make a comparison of the returns to the counties in Montana, from the 25% fund and the several road funds, against what they would presumably obtain were the National Forests in private ownership. I went to Harry Ade, in charge of land exchange work in the District, for some data. Through his exchange work, and the Northern Pacific case, Ade has had occasion to learn the valuation placed by the tax-gatherers on some three or four hundred thousand acres of forest land of various types throughout the State. The reports of the State Board of Equalization, which give by counties the average assessed valuation of different types of land, were also consulted. Applying his knowledge of the relative value of National Forest lands of different types in comparison with the private lands, Ade made a guess as to what tax valuation would presumably be placed on the National Forests were they in private ownership. There is of course much room for error in comparing National Forest with private land, and there is so much variation in valuations placed on similar land in different counties that the data are not worth much as a basis for actual appraisal. They do seem to constitute a fair guess at what the tax-gatherers in the State would appraise the lands for with a view of levying taxes. Space does not afford a complete statement of valuations for the various types such as grass and brush, barren, subalpine, commercial timber, etc. Only the total of approximately $60,000,000 will be given, which is for slightly less than 16,000,000 acres. Mind you again; this is not Ade's estimate of their value, but what the assessors' valuations would presumably amount to. From our experience in land exchange, this figure is substantially higher than the sale value of the land, the valuations placed on forest lands in the State seeming to be in general higher than their sale value. Under Montana law realty is appraised at its full value and the tax mill levy applied to 30% of that value. Combined state and county levies in the forest land counties vary between 40 and 60 mills. Applying the mill levy in each county to the values in that county and totalling indicates for the State a gross tax income of approximately $900,000 per annum.

Following are the average amounts that Uncle Sam has put up for schools, roads and trails in Montana out of Forest Service appropriations during the three years past:

Forest Highway	$373,695.	
Forest Development	330,933.	
25% fund	70,113.	
Section 8	41,280.	(No appropriation in 1927.)
10%	28,045.	
Total	$844,006.	

No doubt the counties would use the money differently but the total, you will note, is only fifty some thousand dollars short of the estimated income from taxes. The amount is presumably much larger than the counties would be receiving in taxes had the National Forest land not been reserved from entry because the greatest portion of it would not by this time have passed into private ownship, anyway.

This is to my mind an interesting and instructive line of study, by which each man on a ranger district or a Forest could discover some interesting things for himself and gather some instructive Public Relations material by getting into it.

PRIVATE PAPERS OF P. PALUSTRIS.

Dr. John D. Recreation,
Pomona, Mass.

Dear D. John:

I wrote of the Michigan problems last time, and of the progress made there under Sec. 6 of the Clarke-McNary Law. The Superior will be a different story. Planting will be much more expensive and we have many technical problems to work out. The young hardwood growth on the ground is in itself a problem. How to treat it and how to replace it with a better forest at reasonable cost is something we will have to learn. To my mind, however, from the standpoint of public interest the most important thing just now is for the Federal Government to acquire title to the adjoining and intermingled public lands and stop fires. I am convinced that in the long run the cheapest and easiest way to secure adequate fire protection in this region is through the authority of Federal ownership. However, in this connection we must keep clearly in mind the fact that if this land is purchased by the National Forest Reservation Commission it is under authority of a law which empowers it to do so to "promote the production of timber thereon." I hope "for the love of Mike" our wilderness idea" friends will not burn up the country with publicity urging that the region be devoted to canoeing to the exclusion of lumbering. At any rate I hope the Forest Service will be wise enough to keep its feet on the ground. Certain it is that if the idea should become prevalent that the area which the National Forest Reservation Commission proposes to purchase with the funds appropriated for the acquisition of lands to "promote the production of timber thereon" is actually to be held as a wilderness, without developing it for timber production purposes, some of us will be made to walk the plank. Personally, I prefer to do my walking on Mother Earth, with my eyes open. Personally, I am "fer" the wilderness idea, but it is the only kind of wilderness that one may reasonably expect to find coincident with the transportation facilities and economic development of this age.

What is a wilderness anyhow? With his nearest neighbor only fifty miles distant. Daniel Boone felt crowded and had to move on to the open country. On the other hand. Henry Thoreau found his wilderness at Walden Pond, within plain sight of a branch of the Pittsfield railroad.

Many a time when reading Irving, Francis Parkman, Elisha Kent Kane, and Henry M. Stanley, I have bewailed the unhappy fate that fixed my entry into this world at a time when most of the great wildernesses had been destroyed. The first bloom of North America as a wilderness passed when Columbus landed on the island of San Salvador. Thus far the way was known; thus far the others must travel in a beaten track. The way is still open for anyone to go upstream from St. Louis and follow the route of Lewis and Clarke; but who wants to do it? Fremont removed a large part of the charm from certain regions by removing the mystery of inaccessibility. I am in sympathy with that part of the wilderness idea that wishes to preserve the wild life and flora of certain definite areas for their educational and aesthetic value. I realize that these are primarily National Park purposes; yet I would not hesitate to devote limited areas within National Forests to such secondary uses. I haven't so much sympathy with the idea of excluding transportation facilities from an area for the primary purpose of keeping it inaccessible. The idea is self-destructive. If it is so inaccessible that it can be enjoyed by only a chosen few then are we justified in expending large amounts of public funds or withholding from use very valuable economic resources, which amounts to the same thing in the long run? If instead of the enjoyment of a few it is to be for the enjoyment of many what becomes of the wilderness? Is the total or nearly total absence of man the prime of a requisite wilderness?

I am not at all sure that the exclusion of other routes or means of transportation is absolutely essential to the wilderness idea or the enjoyment of a canoe trip. Some few months ago I read a very interesting account of a canoe trip taken by a couple of young men on the canals of Holland. Right here seems to be a good place for me to acknowledge receipt of your own very interesting account of the very delightful canoe trip which you and your son took down Ware River last May. It seemed also to me that in spirit you were much closer to the real wilderness when you bivouacked on the site of King Philip's camp of August, 1675, than "Arcie Rockabilt" would be with his guide and packers and their new Old Town canoes following the northern canoe route through the Superior. Furthermore, I believe you saw more and got more out of it. Well, I know it might have been much better if more care had been taken against stream pollution, and that sort of thing. But all such things can be taken care of and still devote mature trees to urgent human needs.

It is my feeling that if we will be reasonable upon the one hand and sympathetic upon the other we can have the blessed part of our wilderness and still utilize the products of our Forests. We don't need to build automobile roads paralleling canoe routes, but at the same time this should not prevent us from building tote roads to lumbering camps. I'll bet you have visited many a wilderness area in Maine and Canada where you traveled into the wilderness by means of a lumberman's toteroad. If protected against fire the wilderness has a way of restoring her sway over any forest region very quickly after the lumber jack has departed. The pack rat builds his nest in the cook house, and the chipmunk chirps on the window sill of the wanigan.

He must have little confidence in his own stamina or moral courage who fears that the pleasure of his canoe trip through a region will be destroyed by the consciousness of the fact that its terminus might be reached by some other means of transportation or by some other route. Does he fear that the blisters on his hands will cause him to quit the paddle at noon-day, walk over the ridge and down the other side to a point where a jitney may return him to paved streets? Personnally, I am not disposed to recommend any great public sacrifices for the purpose of assuring alluring contacts with Mother Nature to an individual whose affection for her is so slight that in order to make sure of his not escaping from her embrace you must surround her with an impregnable wall of inaccessibility. Bah! Nearly every morning as I drive to work across Rock Creek Bridge I meet Senator Borah walking in the other direction to where a colored boy is holding a saddle horse for him to take his morning ride through Rock Creek Park. The fact that he is passed by a thousand automobiles on a paved street doesn't interfere with his horseback ride. In fact, I rather imagine that it adds zest and novelty to its enjoyment. This also reminds me that Joaquin Miller found his wilderness right here in the District of Columbia on Meridian Hill, and his log cabin is still standing in Rock Creek Park.

And now I have finished being garrulous. When you come through Washington on your assignment with District 7 I hope I shall be here. My plans now call for a trip through the Lake States early in June. I return to Washington, starting west again for the field season about July 10. Really, it is very urgent that I be here while you are in the city. A couple of years ago I acquired a very great estate in the District. Great, not in the sense of space or value, but by reason of the fact that there is no place else in the world like it. In dimensions it is 70 by 85 feet, and contains a little 7-room bungalow, and this little piece of ground, together with the building, is "home, sweet home" to Mrs. Palustris and me. My orchard is in urgent need of the careful examination and skilful ministrations of a horticulturist like yourself. It consists of only two apple trees. That is why it is so darned important. If I had a thousand it would not matter so much. Well, anyhow I hope to see you, and meanwhile writing these letters has relieved my mind considerably.

The much better half of our domestic corporation joins me in wishing good luck to you and yours.

Yours with both feet on the ground,
P. Palustris.

(This is the last of a series of six letters.
EDITOR.)

DEMOCRACY OR AUTOCRACY?

By George W. Lyons, Modoc.

The editor started something in a recent issue of the District News Letter in his outspoken statements about what should be done in regard to the uniform. Sounds more like Russia than the good old U. S. A.

Why isn't the uniform more popular? is a fair enough question. I think this can be answered:

1. The Forest Service has achieved an excellent reputation as a doer. Our work is decidedly varied and not generally a "dress up" job.

2. Salaries have not been in keeping with officers' ability to wear high-priced clothes at any cost.

3. Higher-ups don't practice what they preach. They want the field uniformed and make exceptions of themselves. (See Reg. A 1).

4. It is extremely hard to put over because it must be furnished at officers' personal expense.

5. It is not suited for all conditions. Comparison with Park Service, whose primary object is recreation, is beside the point.

For office work and for a Ranger doing a big special use business the uniform is perhaps the cheapest form of clothing, and we have generally adopted the policy of wearing it where it is suitable, as prescribed in the Regulations.

For a Ranger who must ride after stock, help brand calves, build roads and trails, fight fire, climb telephone poles, dig post holes, scale timber and forty-'leven other things, a uniform is out of the question if he cares a darn about expenses.

There is a lot in dressing to suit your forest users and your surroundings. If you don't believe it just look around and count the number of uniforms regularly worn in the District office during office hours.

With reference to the last paragraph, please reread Regulation A 1. I know you will come and quote "assigned to field duty," -and there is just the trouble.

DO FIRES DESTROY WILD LIFE?

Replying to the item in the Daily News of January 13, requesting authentic cases of wild life destroyed by fire, the following is offered by Mr. Humphrey of the Manti:

In August 1926 I was detailed to the Lost Johnny Creek fire on the Flathead Forest in District 1. We arrived at the Riverside fire camp, about 15 miles above Coram, on the south fork of the Flathead River, after the fire had quieted down--at least it was not crowning at that time. The Riverside Ranger Station, and a fire fighters' camp located across the river on the west side had been burned to the ground. In this particular locality, the forest was a mixed stand of spruce, fir, larch, and white pine. The station which had burned down was located within one hundred feet of the river bed. For some reason or other, the Ranger's personal belongings, including, as I recall it, eighty dollars in paper money, had all been destroyed.

Ranger Austin, who was in charge of the adjoining district, assured me that the fire while at its height did not travel faster than two miles an hour. This being the case, it would seem unlikely that deer or game birds would be overtaken by the flames. Pine squirrels and other animals however were all destroyed in the path of the fire. Along the edge of the fire, where we were trenching, we saw a number of pine squirrels that apparently had their feet so badly burned that they could not climb trees. The deer in this locality are of the whitetail species. I found two deer on the creek below the fire fighters' camp that were burned to a crisp. Two other deer--one a large buck and the other a yearling--died near the Riverside pasture gate. Another old buck, with the hair over his hind quarters badly singed, and his feet so badly burned that he could hardly walk, was seen by the entire crew a number of times between Riverside and Murray Creek. I also saw a fawn in the vicinity of Spring Meadows that had evidently lost its mother. The feet of this fawn had been badly burned. However, it appeared as though it would recover.

A great many grouse that had died from the effects of the fire were found. In fact, the fire fighters reported finding dead grouse almost daily. Supervisor Shepard of the Wasatch and I found a dead grouse. Its feet had been burned, and very likely breathing the heated air had killed it.

As explained above, this fire did not travel fast enough to overtake either the game or the birds. It is my opinion that both, after the fire had quieted down, drifted back to their old range through the smoldering ashes. After getting in where the ashes were extremely hot, and burning their feet, they had become somewhat bewildered, and probably had run on until they were so badly burned that even though they got out of the fire, they later died from the effects of the burns. Both deer and grouse appeared very reluctant to move away from their home grounds which had been destroyed by the fire, and they returned immediately after the fire had quieted down, before the ground had had time to cool. Nearly every day we would see deer wandering through the burn, especially on the meadows, even though the forage was practically all destroyed. - District 4.

SOME FIRESIDE TALES

By K. P. Cecil, Columbia.

On the Steamboat fire on the Columbia last summer, one man was noticed to be working very industriously on his section of the line when he suddenly heard the noise of the Hauck torch backfiring behind him. Throwing down his grub hoe, he rushed in search of the foreman and coming on him, out of breath, told him that someone was doing a very dangerous thing. He said he had worked hard to get out two spot-fires that morning and now some crazy nut was coming along and throwing fire all over the country. The foreman tried to assure him that it was all right and started away, but the man very excitedly called to him to stop; said he was not going to stand for such crooked work on his section of the line and that that torch was dangerous and he knew it, and if the bosses were going to permit such crooked work as that to go on he was through. The foreman had quite a time to get this fellow settled down but we take it that he understands a little about backfiring now.

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Some 63 men were sent from Portland to this fire, being picked by the Supervisor from a local employment office. After getting the men started, the Supervisor left for the fire. A few days later two men approached him and inquired if they might settle an argument and, being told in the affirmative, one of them said, "Aren't you the employment man who signed us on in Portland?" When told that he was quite right, he turned to the other man and said "Well, I knew those employment office men are following up this gang to see whether we work or not. I knew that fellow was an employment man the minute I laid eyes on him. I guess if we want another job out of their office, it is up to us to hit the ball."

"We have an ample supply of investigators, but there is a shortage of readable and responsible interpreters, men who can effectively play mediator between specialist and layman.

"The practical value of every social invention or material discovery depends upon its being adequately interpreted to the masses."

A PROBLEM SOLUTION IN FOREST UNECONOMICS

By Howard R. Flint, D. 1.

Mr. Koch's problem in forest economics, page 5 of the December 27 Service Bulletin, is such a live one in D-1 that more comment on it might have been expected. In addition to the solutions proposed by Koch, it appears that there may be others.

Under existing market conditions and with our present degree of forestry ignorance, may not the wise and practical treatment be to stay out of such stands entirely for a few years? The lumber industry in the west is suffering, temporarily at least, from overproduction. It is conceded that white pine is being rapidly depleted. The stumpage price of it in the West has greatly increased in the last 15 years. The general trend seems likely to continue upward. Other species also, including the despised hemlock, promise to show higher prices in the future. In the last 10 years the average of Forest Service timber sale stumpage rates for all species has gone up at the rate of about 3% per annum. It seems quite probable that 20 years hence stumpage will be considerably higher than at present. It is not unreasonable to suppose that at that time pretty defective hemlock may be removable for what sound wood there is in it. Of course this overmature stand is likely further to deteriorate to some extent in the next 20 years. Barring the accident of fire, there is no reason to believe the deterioration will be very great. On this detail we lack real data, but general observation seems to warrant the assumption. There are good arguments "agin" wilfully burning up 22½ million feet of poor mature timber to make way for a new stand that MAY ripen there a century hence. And it does not seem sound to pay some one to remove it.

In the face of a threatening timber scarcity and increasing stumpage rates why be in unseemly haste to part, at little or no immediate profit, with mature trees that can be held to fill an urgent need 20 or 30 years from now, when we do not hesitate to plant three-year-old ones and wait 80 or 100 years for them to grow? It is easier and safer to look 20 years into the future than to look ahead 100 years. Of course, unproductive acres are undesirable, but there are plenty of other idle acres and more urgent problems to absorb all of our resources and energies for a few years to come.

Koch has offered Solutions 1 and 2 with figures indicating the immediate financial results to be expected from each. "Do nothing with it but to protect it from fire, experiment with it on a small scale, study the problem and BE PATIENT," is respectfully submitted as Solution number 3. No figures are offered in support of it because the only certain thing about such figures is that they are sure to be wrong in 1947.

In the meantime, let us not forget that omnipotent instrument which has obliterated so many silvicultural errors and successes in D-1 -- FIRE. This area has been afire, and quite seriously threatened at least three times in 8 years. Each time it started from slash-disposal operations on the area. Each of the fires went to goodly Class C size "muy pronto." This is offered also as a not improbable Solution-#4. Perhaps there are others.

"FIRST IN WAR, FIRST IN PEACE," -- AND ONE OF THE FIRST SHEEPMEN.

George Washington's agricultural proclivities are a matter of familiar history. It is probably not so generally known that they included sheep-breeding.

In his highly informing "Brief History of the Sheep Industry in the United States" the author, L. G. Connor, states that George Washington in his day was "a careful breeder" and "a leader in sheep improvement." He adds that, despite rigid British restrictions against their shipment from the homeland, Washington was able to import a number of Bakewell's "New Leicester" breed and that, in 1788, his Mount Vernon flock clipped on an average of 5½ pounds of long-staple wool per head. After his election to the Presidency Washington's flock deteriorated rapidly so that, in 1797, there were only 200 head and the clip averaged but 2½ pounds per head, giving a vivid illustration of the value and skill of Washington's personal supervision. After his return to Mount Vernon at the end of his second term as president, Washington, Mr. Connor states, began to breed up his flock of sheep anew, securing a pair of fine Persians, but his untimely death "ended his efforts before anything had been accomplished." Shaw and Heller ("Domestic Breads of Sheep in America," Dept. Agr. Bul. 94) state that Washington's flock was dispersed in 1802, three years after his death. It is of interest to recall in this connection that the introduction of Persian sheep into this country is commonly attributed to U. S. minister to Persia, Truxton Beale, in 1892. -- Daytonius.

PICKED A GOOD ONE

By A. J. Jaenicke, D-6.

Bud Burgess, Ranger in charge of the LaPine district, Deschutes Forest, knows a good man when he sees him. A few weeks ago, Bud was hard up for an emergency patrolman. A prominent Southern Pacific construction engineer stepped into Bud's sanctum in La Pine to get some information. He looked good to the district ranger and was promptly offered a patrolman's job at the regular pay. The engineer regretted his inability to accept but did not disclose his identity to Bud. However, the offer tickled his vanity and he had no hesitancy in telling the writer so.

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WILDERNESS AREAS

By Theodore Shoemaker, D. 1.

I find it hard to adjust my conception of a wilderness area to that which evidently is in the minds of several who have recently written for the Service Bulletin. Can it be a wilderness if it be grazed and the lakes converted into storage reservoirs? And if these things are to be allowed when needed, why not other uses of a materialistic nature, such as lumbering, with its attendant road development and unavoidable destruction of natural conditions? What shall we have left? A forest, yes; a beautiful and enjoyable country, quite possibly; but a wilderness, No.

Some sixty miles, as the crow flies, southwest of Denver and northwest of Colorado Springs, in the Pike National Forest, is a tract of more than 500 square miles of totally uninhabited, mountainous country. There are no roads, and a minimum of trails serve for protection and grazing. It embraces a fine range of mountains with peaks above timberline; a broad basin area with heavy timber of merchantable quality interspersed with large grass parks, through which run fine streams; two impenetrable canyons, one carrying a fine river and the other an underground stream for a part of its course; it has big game and, in fact, all the natural qualifications of a "wilderness." But, it also contains millions of feet of merchantable timber that will be needed some day, and in the basin area, which forms the heart of the tract, some 3,000 head of cattle are grazed in summer, forming the basis of success to many ranches in South Park. I doubt very much whether the Service would be justified in undertaking to turn this area back into a wilderness at this stage of the game.

The other area comprises a hundred square miles or so in the Mission Range in Montana. It is entirely without trails. It is not and never can be grazed by domestic stock. It has no merchantable timber and it is immune to fires. Future water development is not important. No signs of valuable minerals have ever been found. In fact, there is not a prospect hole in the area. It has some of the more rare and interesting wild life species, and is rich in botanical interest. It has lakes, by the score, of almost every hue and with a variety and beauty of setting difficult to excel. It has fine mountain peaks, many of which have not been scaled. It has glaciers and glacial remains of extreme interest. It has streams and waterfalls of striking beauty. And, while it may not seem so, it is, in reality, large enough to require weeks to see it at all thoroughly.

To my mind it measures up to the requirements of a true wilderness area. I am not ready to say what sort of development it should have, but I do know that it would easily be possible to destroy its wilderness qualities by overdevelopment of roads or recreational improvements. Only the few hardy individuals who can carry their food and beds on their backs for days may see it as it is.

I can see no objection to setting this tract aside as a wilderness area, giving it public recognition at this time, and so directing and limiting its development that the wilderness feature may never be lost. I wonder if the wilderness study might not now be directed to a search for such tracts rather than to the effort to establish wildernesses within areas where other uses are in conflict and may in time need to be recognized as dominant. In this way the whole subject will lose its abstract character, and will take a course of real accomplishment, provided, of course, the standard for wilderness qualifications is kept up to a place where it stands for something.

CALIFORNIA EUCALYPT RIVALS JONAH'S GOURD

Thirty-seven years ago, on a ranch near Dinuba, Tullare Co., California, according to the Timberman, a hen scratching around in a box of nursery stock for a suitable place in which to lay an egg, knocked the top off a little eucalyptus seedling. When the stock was used for the planting of a nearby grove, the topless seedling was thrown out as a cull. A laborer passing by picked it up and stuck it carelessly into the ground in an open field. Such was the humble beginning of a manna gum (EUCALYPTUS VIMINALIS) tree that has grown with a rapidity rivaling Jonah's gourd.

In less than ten years, in the kindly California climate, the slender 10-inch seedling had grown to a circumference of over 7 feet and a height of 63 feet; at 20 years it was 14½ feet around and 120 feet high. On its 37th birthday, in 1926, this manna gum had attained the astounding circumference of 21 feet 2 inches at 3 feet above the ground, a height of 131 feet and a spread of 123 feet.

WHAT IS FIRE CONTROL?

District 7 has reduced to the form of a brief fire control code what it regards as the essential steps of fire control.

Prevention

1. POSSESSION OF EXACT and detailed knowledge of each risk, gained by comprehensive risk surveys embracing causes of past fires, mental attitudes, customs and motives of local residents and other forest users, physical situations, and seasonal use and occupancy. (New areas mean new dangers.)

2. DETERMINATION AND CLEAN-CUT definition of each risk zone.

3. PREPARATION OF PLANS providing specific lines of action to ward off, overcome, or minimize each risk within each zone.

4. TIMELY, DILIGENT, AND EFFECTIVE execution of plans.

5. CONSTANT VIGILANCE after plans are drafted to sense, identify and cope with new risks, shifting risks, and enlarged risks.

6. PROVISION FOR PROMPT SHIFT of men to new duties, new positions, or the employment of emergency guards, as risks shift or enlarge, or as new risks develop.

7. TRAINING OF FORCES in survey and identification of risks, public contracts, control of specific risks, reduction of inflammability, and law enforcement.

8. APPLICATION OF CREATIVE THOUGHT, foresight, and alertness in sensing opportunities and providing needed facilities for current and future prevention programs.

9. PARTICIPATION IN the state-wide field of forest fire prevention, the demands of local fire problems and other Forest Service work being given due priority.

Preparedness

1. POSSESSION OF exact and detailed knowledge of preparedness requirements of each protection unit, founded on analysis of fire history, searching into such factors as fire traps, risks, fluctuation in intensity of danger, rate of spread and probable future fire load.

2. Provision for:
    1. DETECTION: comprehending the entire protection area, accurate, sustained and prompt.
    2. COMMUNICATION: linking effectively the detection, despatching and suppression forces.
    3. MAN-POWER First, second, and third lines of defense; definitely enrolled, classified, organized and assigned; ample in number for two or more simultaneous fires; well instructed; led by trained foremen, (Man power in excess of capacity and ability of skilled foremen on a job is waste.)
    4. TOOLS - SUPPLIES AND EQUIPMENT In standard units, ample, well-selected, and coordinated with sources of man power; food, canvas, and bedding not forgotten.
    5. TRANSPORTATION: making readily available man power, food, tools, and equipment.

3. PRODUCTION OF fire plans through combined thought, participation, and effort of Supervisor, staff, and rangers.

4. TRAINING OF PERSONNEL: - (forest officers and assistants) - in preparedness and in suppression to insure requisite skill - constant alertness for evidences of good and bad work - for trends and indicators of changing conditions - so that each will take exactly the steps warranted by circumstances from start to finish.

5. REALIZATION THAT with the best available fire boss on line, every fire must be hit, promptly and hard, and mopped up to the point of security before the first "burning hour" of tomorrow or today.

6. REALIZATION THAT fires out of hand usually are the result of poor workmanship or delayed attack.

7. REALIZATION THAT effective suppression of fires, small or big, means cutting off spread, "fire-tight" mopping up on the heels of line builders, and "killing" every potential fire-spreading spark before abandonment.

(To be continued in next issue)

WHAT TREES DOES LIGHTNING HIT?

By Richard E. McArdle,
Pacific Northwest
Exp. Sta.

Before some voice from the gallery beats me to it, I hasten to remark that lightning probably strikes all species of trees. However, "statistics show" that it strikes certain species of trees much more frequently than it does others. For instance, the best European study indicates that Pine, Oak and Spruce are the species most subject to "lightning stroke", and Beech perhaps the least liable. In this particular study, 90% of all strikes hit the three species first named above (which comprised about two-thirds of the total forested area); and only 3% of the total number of strikes connected with Beech trees, although this species comprised nearly one-third of the total forest area exposed to lightning. An American study, by Plummer, based on over 76,000 trees, showed that 72% of the trees hit by lightning were western yellow pine and Douglas fir.

The question is, why should one species attract lightning more than any other? Concensus of opinion, both American and European, seems to be that height of the trees, especially of isolated ones, and the character of their bark have much to do with the relative liability of lightning striking them. This means that the smooth bark trees are less likely to be struck than those with thick, furrowed bark, and that dominant trees are more liable than the shorter trees in the forest. It has been claimed that there is no evidence to show that trees growing in any particular class of topography are struck more often than those in other classes beyond the natural tendency of lightning to hit trees on the ridges.

There are very meagre data to show what influences character of soil, its moisture content, and the like have on the attraction of lightning. Nor is there reliable information concerning the character of the trees that are struck, whether they usually have spike tops, whole green tops, or if snags are hit more frequently than green trees. This opens a fertile field for conjecture involving such questions as: What percentage of the trees are killed? Do lightning fires originate from trees struck, from snags only, or from strikes to the ground? What proportion of the trees or snags struck are ignited, and does this vary with species? In our study of lightning storms, an answer to these questions would most effectively round out a discussion of the meteorological conditions responsible for such storms.

JOHNNY APPLESEED OF THE COW COUNTRY

We recently secured ten pounds of alfilaria seed for experimental planting on the Datil Forest, reports the Datil Bulletin. Alfilaria is one of the best forage plants found on the ranges of Arizona and California and it makes its principal growth in winter and early spring and is especially needed on account of lack of good feed at that time. The plan is to divide this seed and have small amounts planted in protected areas at lower elevations on and adjacent to the Forest. The south end of the San Mateos and of the Black Range District should be especially good places to try it out, although small amounts will also be planted on Beaver Creek and elsewhere. It is intended that if the plant does well on a small scale, we may secure more seed next year and plant it a little more extensively, so as to help it get a start on ranges of the Datil. -- District 3.

(Montagu Stevens of Reserve, New Mexico, an Englishman and once mighty hunter, brought a bag of alfilaria seed from California years ago and scattered it from horseback in the neighborhood of Reserve and Luna, where it will be found growing now. There are mesas in Arizona that may be dry and dusty in January and a few weeks later be as green as a clover field with this wonderful plant. -- Ed.)

THE "RECREATION ENGINEER"

By E. W. Tinker, D. 2.

There have been divided opinions on the place of the "Recreation Engineer", if any, in the Forest Service.

Just when the term "Recreation Engineer" originated it is hard to say. What is he, and whence do you get him? As near as I can approach the answer, I should say he is a landscape architect educated (largely out of school) in the use of land for recreation purposes. Apparently the only way to get men for this work, is to educate them for it. And if the Forest Service needs them, it will have to do this very thing.

The recreation engineer must know the economic side of forest administration as well as the social side and he must have a viewpoint broad enough to balance one against the other. An exceptionally broad knowledge of plans for economic use is vital if he is to allocate land to recreation intelligently. He must know not only the forest management plan, but the silvicultural practice, the grazing plans, the fire plans, and the methods of logging. The reasons why he must know these things are too obvious to need discussion.

In my judgment, it will be possible to educate the forester with a bent that way to the recreation engineer's viewpoint of the social problems in the use of the National Forests. It is true that the landscape architect could, in time, be educated to the forester's viewpoint but the process would be long and expensive. With the opportunities we have of picking men out of our own organization with a definite inclination toward recreational work, I would recommend doing it that way. Recreation planning is a complicated job and at least for the next decade or so there will be many chances for serious errors in handling the work. Until the Forest forces are educated in it, specialists are needed and we should be developing a few to carry on the education. However, let us not give too much weight to the intricacy of the job. It needs, fundamentally, a broad knowledge and viewpoint, a touch of the aesthetic, bounded on all sides by a wide belt of common sense.

WHAT TH' SAM HILL!

Mr. Barnes recently spoke in Service meeting of Bishop Clos, who was an inspector of grazing in the Forest Service from 1906 to 1910, and Mr. Tidestrom has given me the following "Good One," which I think is worthy of preservation in the Memorabilia of the early range history of the Service.

One day, while out with the Bishop on that Manti 1908 reconnaissance, Mr. Tidestrom states that Mr. Clos spied an elderberry bush up a canyon and, in a characteristically explosive style, ejaculated: "Why there's SAMBUCUS!" The pragmatic Ranger, unlearned in Linnean lore, who was accompanying the outfit, thereupon exploded with: "Sam Bucus! Who in **** is he? I've lived 'round here all my life and never heard tell of HIM!" -- Daytonius.

THE FOREST BIOLOGIST

By H. N. Wheeler,
Washington.

Hasten the day of the Forest Biologist as discussed by Mr. E. N. Munns in a recent issue of the "Journal of Forestry." There is a distinct need for accurate knowledge about the wild life of the forest. At present the information available on the economic value, the food and habits of the wild animals, birds, and insects is meagre and inaccurate. The need is great. Most of the observations on wild life have been made in a superficial way by amateurs and nature fakirs. Some States permit the killing of only buck deer or bull moose or elk. Other States disagree with that management. What is the proper procedure? Some States consider the black bear predatory and others treat it as a game animal. Which is correct? Some people claim squirrels eat birds' eggs and little birds. Do they and to what extent? A few years ago elk shipped from Jackson's Hole to Colorado were infested with ticks. Were they spotted fever ticks? And did the elk introduce spotted fever into Colorado? All the nursery bulletins and biologies extant were examined for conclusive information. It was not found. One man lost his life of spotted fever contracted while studying the spotted fever tick. We need corroboration by a dozen or more persons, in regard to the habits and characteristics of the spotted fever tick, and ALL other ticks. When will a real study of our outdoor friends and enemies be accurately and exhaustively made? Perhaps the Forest Biologist is the solution. Several colleges and universities have been urged, for years, to make the start. When may we expect a beginning?

The Grand Diapason of 'The Guild of

Former Pipe Organ Pumpers' has written to the Forester inquiring as to the location of the one and only Whittling Club in the country. We should have referred the inquiry to the Chief Squaller of the Hog Callers Sewing Circle, but have mislaid the address of this 'contact'.

COOPERATION THAT COOPERATES

By E. H. MacDaniels, D. 6.

The season of 1926 will be notable for quite a while as the year when the private protective agencies showed what they will do if they have to.

The Eastern Washington F.P.A. fought fire to the extent of 42 cents an acre. Stevens County, with 80 or 100 lightning fires, worked on them until it knew that it was broke, and then continued to fight them for another month! The Washington F. F. A. started the year with their regular 5¢ patrol tax and a surplus of $40,000. They spent it all, and an additional $40,000, and would have added $100,000 to that if it had been called for. District I, in Klamath County, ran up a patrol tax of 15 cents an acre. For a yellow pine country, that is decidedly out of the ordinary; but this was not an ordinary season.

The Shevlin-Hixon Co., at Bend, Oregon, which cuts 5000 to 8000 acres yearly, has been experimenting with slash disposal for the last few years. They do not burn their slash in piles or otherwise. They let it lie where it falls, construct wide fire lanes around every quarter section or so, and then put in a model fire crew. In spite of the bad year they lost only 200 or 300 acres. That is considered a severe test of their system. About 2% of the cut-over land was burned. The loss of merchantable timber was about 2/100 of 1 per cent - not so bad, either, considering.

PHENOMENON

A short time ago the occupants of the Brush Creek road camp on the Ashley Forest had a narrow escape when a huge rock broke loose from a ledge some 200 feet above the camp, presumably by the action of the frost, rolling into and starting a second boulder which in turn hit and started a third rock much larger, rectangular in shape, approximately 25×40×20 of sandstone formation, breaking it into numerous pieces which went crashing down the side of the mountain depositing several tons of rock and debris over the road right of way, and scattering large boulders through the camp.

The peculiar circumstance is that 15 boxes of dynamite were stored under a shelf of the third rock, the entire mass passing over this without discharging the explosives. The powder was crushed into fine particles so that only 10 broken boxes could be recovered, the remainder being deposited under several tons of debris.

The road was blocked until opened by Uintah County and the road operation. The side of an auto was badly crushed and several tent ropes were broken. Aside from this no other damage was done. -- District 4.

THE MUSKRAT IS CHARITABLE

That many neighbors of the industrious muskrat impose upon his generosity and good nature by taking advantage of his constructive activities is shown in a bulletin by Dr. Charles E. Johnson of the Roosevelt Wild Life Forest Experiment Station, New York State College of Forestry, Syracuse University.

The bulletin states that such water birds as the black tern, the mallard, canvasback and ruddy ducks, wild geese, and green heron, use muskrat houses as nesting places. But the most interesting encroachments of these numerous squatters upon the domiciles of the muskrat are those of the water snakes and turtles, which sometimes may be said to make their homes in the houses of the muskrat.

Dr. Johnson recounts several instances where water snakes had made their retreats in muskrat houses, and even used the water-filled plunge holes as a domicile. It is also interesting to note that no evident antagonistic relations exist between the water snakes and the muskrats. The snapping turtle and the painted terrapin, and doubtless other species of turtles, use the muskrat lodges for nesting places. Dr. Johnson tells of finding from 22 to 32 turtle eggs in a muskrat house in the marshes of Central New York. These nests usually are made from four to seven or eight inches below the surface of the house. The turtle lays its eggs deep enough in the structure of the muskrat house to keep them always embedded in moist material. On occasion, the turtle also finds the muskrat burrows a convenient, ready-made chamber for its long winter sleep. - New York State College of Forestry News Note.

TRAIL MARKING

By E. L. Besondy, Montezuma.

After reading all of the articles which have been published in the bulletins on the subject of marking trails on the National Forests, there seems to be a wide difference of opinion that the old original trail blaze should be abandoned and replaced with metal signs with brass nails, bright colored paint, etc.

I cannot agree to these suggestions for several reasons. The metal signs would make good targets and would therefore be defaced. They would be expensive. They would be easily pulled off a tree and thrown away. They would be easily chipped if hit with a rock or stick. If the tree were taken out under logging conditions the sign would have to be removed, and this could not be done without injuring it. The bark on the tree would have to be smoothed up with an ax and the pitch would run out over the sign and stick to it. So while this smoothing of the bark is being done why not put a neat little blaze on the tree and be done with it.

If each trail trip on the Forest were marked with different colors of paint, and the Forest had a map showing the trail trips with the same colors, it would be almost necessary for each person who traveled the trail to have a map. Otherwise, they would be apt to get lost unless they were well acquainted with the trail. In this case what good would the different colored paint markers be? The paint would soon fade, and they would have to be repainted. This is also expensive and takes time. The painted markers would soon be carved full of names, letters, pictures, etc. The bark on the tree would have to be smoothed up, the pitch would run out over the paint and make it look bad. While one is smoothing up the bark on the tree for the paint, the blaze could be put on, and no paint would be required.

Now I may be getting behind times and even if I am I have marked several trails on the National Forests, and I will stand by and stay with the old trail blaze, unless it is changed, because it is known by the public. It takes but little time and nothing but an ax to put it on. The blaze is seldom defaced. It stays on the tree in the same manner as when put there. The dot stands for FOREST and the blaze for TRAIL. It is simple, yet noticeable and distinct. If the tree is taken out under logging conditions there is no trail sign to be removed and further more no paint lost.

SHASTA NEEDS AIRPLANE LANDING FIELD

By L. T. Solaro, Shasta.

A good reason why the Shasta National Forest should have a landing field near Mount Shasta is shown by the following item:

On September 7 a fire was raging in very steep country on the North Fork of Castle Creek, where we had a large crew of men working. It would have taken twenty-four hours traveling time to walk around the fire and it was impossible to take a horse around it, so an airplane was ordered from Sacramento and a flight made. After seeing the conditions at the head of the fire I was able to lay off ninety men. At the same time I was able to look over five other of my going fires and was able to reduce the force the same day.

The trouble with the use of a plane, however, is that the nearest landing field is at Yreka and it takes at least two hours travel time and extra expense to get there. Airplanes are therefore not used so much as they would be if a landing field were near.

ON BEING STUCK UP

No one at the Pacific Northwest Forest Experiment Station has ever been accused of being this, but Leo Isaac was - for about a minute - one night recently in Portland, when the muzzle of a .38 was put in his face with the urgent request to "Put 'Em Up". As his hands went up, the packages he was carrying dropped to the wet pavement, his expression changed to that of ? Skillfully, the thug went through his pockets with one hand while with the other he beat a tattoo with the gun on the researcher's ribs. On getting a fat pocketbook (of papers) the highwayman left, overlooking some bills carefully cached in another pocket. Leo reports that "being stuck up" did not have a tendency to raise his spirits. - District 6.

RANDALL SUCCEEDS KAUFFMAN

Mr. Erle Kauffman, who has been working very effectively on press material in the Washington office for the past three months under temporary appointment, has been succeeded by Mr. Charles Edgar Randall, Jr., appointed from the register established by the recent Editor examination. Randall is a native of California, is a graduate of Leland Stanford, was a Teaching Fellow in botany at Oregon Agricultural College, and worked for nearly 3 years on blister rust control as Field Assistant and Junior Pathologist. In addition he has had several years of newspaper experience in Washington and elsewhere.

IT DOESN'T PAY TO LET 'EM BURN

By W. G. Durbin, Lassen

Great minds differ even in the same family. Last summer when the big sagebrush fire started north of Susanville the man in charge of the Lands Department of the Red River Lumber Company was notified by us that the fire was heading for the company's holdings but could be stopped at the Antelope road if quick action were taken and about 50 men dispatched at once. The reply received from the company was to the effect that they had a man at Susanville looking at the fire and that it was this man's opinion that the fire would go out before it reached the company's holdings. The lands department man was also of the opinion that if the fire did reach the timber little or no damage would result.

As a result of these dilatory tactics it afterwards took the combined efforts of the company's men, the State Ranger and men of the Forest Service to stop the fire. According to the company's cruiser, the man in charge of the lands department reported to the company that no damage had resulted. The cruiser has examined the burned area and finds that not less than 15 million feet of timber has been killed. The company is now planning on either putting in a mill to salvage the killed timber or trucking the logs 12 miles to Susanville and shipping them to their plant at Westwood.

READ 'EM 'N SHIVER

Depth of snow at various stations on February 7, 1927, is as follows: Lowman R. S. - 28"; Casner's Ranch - 36"; Warm Spring Creek R. S. - 44"; Banner Mine - 66"; Idaho City - 30"; Pine - 30"; Long Gulch - 18"; Rocky Bar - 46"; Bald Mountain - 96"; Cottonwood R. S. - 15"; Black Warrior Creek - 56"; Atlanta - 34";. - District 4.

SPRING FASHION NOTE

Agreement has been reached by the Chiefs of Branches on the Forest Service green. The selected shade and two others generally favored will be technically described by the Bureau of Standards if arrangements with the Bureau can be made.

Service Bulletin

U.S. FOREST SERVICE
(Contents Confidential)

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SPEAKING OF SPEECH MAKING

By Fred Morrell, D. 1.

The "Meeting" season is here. It is during the winter and spring months that Forest officers have most occasion, or most opportunity, as you please, to make "addresses" and to engage in catch-as-catch-can debate at stock meetings, fire association meetings, etc., etc. "There are some of us that likes it and some as don't," but most of us must do some of it.

Speech making, like all other jobs, if worth doing at all is worth doing well. Maybe much of it is not worth doing at all, but that's neither here not there if we are going to do it anyway. So we come back to the point that we are going to make talks and that we should do as well as we can.

To confess that I once took a short course in public speaking will, I suppose, be an additional evidence of the futility of a university education. I must confess it, though, to make my first point. The only thing the professor said that I remember was that it is up to the speaker to compensate people for their time. His theory was that if a speaker addresses one hundred people whose time is worth fifty cents an hour each, then it is up to the speaker to earn at the rate of $50.00 an hour while he talks, else the audience gets gypped. He wouldn't knock off anything for those who go to sleep, either, because he contended that it is the speaker's job to see to it that they don't sleep.

Now I don't pretend to support that theory in full. I'm inclined to think it somewhat impracticable, as teachings of college professors are supposed to be, but it's a good ideal to strive for, like for instance it is a good ideal for the Kaniksu to try to keep its fire losses down to one-tenth of one per cent a year.

Well, if a speaker is going to try for that ideal he obviously needs to do something special about it. He can't put it over by just starting his vocal chords working and then going away and leaving them. The first thing he needs to do is to prepare something to say. In my own experience I have usually found I can best do that by writing it out. When one writes a speech he finds out how much he has to say, gets it arranged in a logical order, and makes a beginning and an ending. (Lots of good speeches have been spoiled because they were too long at one end, due to the speaker not being able to decide on a stopping place.) After the speech is written I have found it desirable to make notes of points to be brought out and then put the written speech in my pocket while I am talking. It isn't usually a good idea to read it unless that is necessary because of a demand for accuracy and a lack of time to memorize.

So I would say first if you have a speech to make and know it far enough in advance, prepare thoroughly. If you don't have time to prepare, don't talk if you can avoid it.

And then after the speech is all prepared, comes the time (unless previous speakers use it all) for you to deliver it. Your name is called (or you butt in), and you "rise to your feet." It is well to "RISE TO YOUR FEET" AND STAND ON THEM. Don't drape yourself over the back of a chair or lean against the wall, or hang one leg over a table, or double up so as to show the pain you feel (you probably are not in any more pain than your audience). The "first movement" is to get up squarely on both feet and stand straight up and throw out your chest. It's your job to buffalo the audience into thinking you've something to say that they should hear. You can't do that by trying to make yourself inconspicuous or insignificant or appearing to be all beat down. And don't get the idea that you look better that way. Most people will disagree with you.

All right. It's time to shoot your stuff. (I almost said "spill it," which would have been all wrong, because what you want to do is shoot it, NOT spill it.) What's the idea? It is to get over to each and everyone of the suckers in your audience something that you want to tell them. It is NOT the idea to just get rid of a lot of words. That won't accomplish your purpose unless your "listeners" listen, and follow your thought. They are not so likely to do that if you fix your near eye on a crack in the far corner of the ceiling and assume an expression of yearning or self-enrapture. "Keep your eye on the ball," is a good motto. In this case the audience is the ball. "Pick up" the eye of each one in turn as often as you can - don't let them get away if you can help it. And when you speak remember that it will do no good to anyone who doesn't hear or doesn't understand. It is your job to talk to EVERYONE in the room. Think of that and make each listen and hear and understand. Of course, you can't usually get them all, but you should "go after" each one just the same. - Carry in your mind the consciousness that each one who doesn't pay attention to what you say represents just that percentage failure on your part and you are likely to do your best.

And last, but not least, don't inflict on your audience any more "errrs," "aahs," coughs, wheezes, et cetera, than you just absolutely have to. It's a fine mental relaxation for the speaker to indulge in those ciphers of speech, but it's hard on the audience, and, remember, you aim to please even if you have to suppress some of your favorite gutterals.

Probably you older readers have attended "experience meetings" in church, and confessed your sins and weaknesses that others might profit thereby. That's where I got the idea of writing this. I have all the faults mentioned above, as many Bulletin readers know, and a lot more that I can't tell you about now. But I'M NOT PROUD OF THEM. - Taken from D. 1 Bulletin.

THESE TAME NATIONAL FORESTS

By L. F. Kneipp, Washington

The "wilderness" discussion was at its height. The Forester became curious. Just how far have the National Forests been invaded with joy-riding highways, polluted with the malodorous fumes of burned gasoline, strewn with the egg shells and other luncheon remains of careless and selfish throngs of tourists, degraded with the modern types of resorts catering to a depraved taste for jazz, bathtubs, bridge and dinner clothes? He asked the Chief of Lands to find out. With his customary skill, said Chief passed the buck to Engineering, whose capable guide decided that Miss Mary M. Murphy possessed the requisite qualities of accuracy, capability, patience, and good nature and sentenced her to the job of digging up the facts.

One of Engineering's chief treasures is its set of "quarter inch maps" upon which is recorded each Supervisor's wildest flights of fancy as to the ultimate road and trail system for his Forest, with a graphic recording of current progress in construction. This was adopted as the basis for the study. The question arose as to whether the study should be based upon the present and proposed Forest Road system, or whether it should include any and every road which the maps showed as existing or as ever having existed. The latter principle was adopted so as to minimize the possibility that some hardy soul might some day lay an accusing finger upon a certain part of the map and assert that he had driven his car to that point. It is, of course, true that cars sometimes are driven over inconceivably bad roads into unbelievable places, but the wildest possible margin of safety was desired.

The next question was, what is the minimum size of a real "wilderness" area? It was decided that 10 townships, 360 square miles, 230,400 acres, was the smallest area deserving of consideration.

So Miss Murphy set to work. The road map of each Forest was subjected to almost microscopic examination. The merest suspicion of the existence of a road disqualified an area. The outlines of areas meeting all requirements were traced out on transparent overlay sheets, the acreage was computed, and records made by which the classification and definition of each area may be checked. It was no easy job; single areas sometimes extended into 4 Forests, or two States or two districts, and careful coordination was essential. Careful rechecks were made to minimize errors. Then a list of the areas was made and totaled.

The results were surprising. At present there are 74 areas, ranging from 360 to 10,859 square miles in extent, which so far as can be determined are without roads. The grand total area is 85,750 square miles, or an average of 1,159 square miles per area. If the proposed Forest Road System, as at present conceived, were 100 per cent completed, there would still be 61 areas ranging in extent from 360 square miles to 5,000 square miles, with a total area of 52,920 square miles and an average of 868 sections per area. These figures are exclusive of Alaska.

The situation is not so bad as some had feared. At present one-third of the gross acreage of the National Forests, exclusive of Alaska, is in roadless areas of more than 230,000 acres in extent. After all the roads our ingenious field officers have been able to think of to date have been constructed there will still be approximately one-fifth of the gross area of National Forests in roadless areas of 10 townships or more. Nobody who owns a good pair of shoe packs or a riding saddle need throw them away because of a fear there will be no place to use them; nor is there any danger that Forest officers will wholly lose the use of their pedal extremities.

LIABILITY OF TIMBER OPERATOR FOR EMPLOYES NEGLIGENCE.

By E. S. French, D - 3.

The case of the United States vs. Saginaw & Manistee Lumber Co. just decided by Federal Judge Jacobs, arising out of fires on the Tusayan and Coconino, Arizona, during the 1924 fire season, is of unusual interest to the entire Service by reason of the important legal precedents established.

Three fires were involved. One of the fires was discovered immediately after the passing of the Company's logging train. No one saw sparks emitted. The engine was burning oil, and by the terms of the timber rights agreement under which the Company was operating a spark arrester was required only when fuel other than oil was being burned. (Note: Recent timber sale agreements require spark arresters under all circumstances.) The Company contended that it was not liable because sparks had not actually been seen to come from the engine and to ignite the Forest cover, also that so long as operating the engine did not violate some requirement of the timber rights agreement there was not and could not be negligence. The case for the Government was rendered more difficult because in Arizona there is no statute as there is in some States, making the discovery of a fire along a railroad right of way after the passage of a train prima facie evidence that the fire started from the locomotive and resulted from negligence. The Government contended that sanding flues on an upgrade, under heavy load, in a strong wind (as was done) was negligence, although admitting that sanding is a necessary operation at proper times and places, and offered evidence that soot expelled from a locomotive during sanding is hot and at night has a reddish glow. The Government was able to refer to numerous Court decisions holding that responsibility for railroad fires can, as in other cases, be established by circumstantial evidence alone.

Another fire was caused by an employee of the Company rekindling with wood the fire which had gone out in an oil burning log loader not equipped with a spark arrester. This violated the State law requiring the use of spark arresters where fuel other than oil is used, and also the Secretary's regulations.

The third fire sprang up just after the work train had passed on the way to camp in the late afternoon. The Company men looking back saw the fire but decided to go to camp and get supper before returning to fight the fire. They claimed that the water in their locomotive was low. Liability of the Company in this case was based upon the requirement of the timber rights agreement that the Company and its employees would do all in their power to prevent and suppress forest fires. The Government contended that going to supper in the face of a forest fire was not compliance with the agreement, in which the Court apparently acquiesced.

The Court awarded the full amount of damages prayed by the Government, $43.89 growing timber burned and damaged, and $115.20 Forest officers salaries and mileage, also the Court costs

Testimony was received without objection of the damage to reproduction computed on the expectation value basis.

ANOTHER ANIMAL STORY

By Edward P. Ancona, D. 3.

Austin Cary in the February 7 service Bulletin asks who will turn up the next animal story. I will, and this time it's a horse. Nipper was a tall, well formed bay, extremely sensitive and one of the handsomest horses I ever owned, or for that matter ever saw while riding the range. He was not native to Northern New Mexico, and some folks that may have known said he looked like a Kentucky thoroughbred. Perhaps he did - I don't know.

Anyway, one warm June day I was scaling at the landing on the Hallack and Howard sale on the Carson and while waiting for a few more big wheel loads to complete the loading of the train of log cars on the switch, I sat down to total up some of the columns in my scale book. Nipper was tied to the big pine against which I leaned. It was nearly noon and he was getting restless to return to the camp and his noon feed.

After a few minutes his soft muzzle was resting on my shoulder - I playfully pushed him away. Next, to my surprise, his head came down and with a little flip he closed the scale book on my lap.

"You old boob, I'll bet you wouldn't do that again in a year," I said, reopening the book on my lap.

His reply was instantaneous - the book was again firmly and decisively closed. Nipper's joy was evident when I arose, untied him, and headed for camp - he had won his point. Anyway it was noon and the crew had quit for dinner.

The demonstration satisfied me that Nipper figured out somehow back of those intelligent eyes of his that the scale book was holding up our return to camp and he took the means he did to hurry along matters. But then, if you're skeptical, it may have been just an accident.

THE INFANT IS WAXING STRONG

By H. D. Petheram, Pike.

When I first came to the Pike I thought that we were carrying "commercialization" too far. No doubt some of those who will read this article will have the same notion. But consider for a moment the situation,. The Pike is located within twenty-five miles of Denver and Colorado Springs and numerous smaller towns. Roughly speaking, the population in the vicinity of the Forest is 500,000, not considering the summer visitors. Vandalism on the part of many of these citizens forced the Service to sell this material in order to protect the Forest. It does not require much of a stretch of the imagination to see this. Furthermore, the present proportion of the business is a pretty good indicator of its justification. It is well to note also that each item constitutes an improvement of the stand.

Year	Number Christmas Trees	Lbs. of Boughs	No. of Wildings for Ornamental Planting	No. of Thinnings from Plantations	Value
1920	200				$30.00
1921	1,910				298.72
1922	983				147.45
1923	5,763		220		592.55
1924	3,449	11,520	25		723.32
1925	7,723	117,481	1,980	281	1666.29
1926	12,116	160,000	15,159	17,745	6569.85

During the past year 10,000 trees from our plantations were sold to D. Hill, and another large sale was made to R. Douglas' Sons, both in Illinois. An inspection last October indicated about a 65% survival. Neither of them is in the field market for trees this season. In order to counteract this probable loss we are sending out "drummer letters" to a number of nurserymen. In addition we are establishing demonstration areas in the plains, giving the digging and planting our personal supervision, in an effort to prove that planting in the plains is practicable. This is all salesmanship and in keeping with our slogan, "Make the Pike Pay." We have made but a small hole in the 100,000 trees which we must remove from our plantation in the next few years. This is a large field and the Pike claims no patent.

WHAT IS FIRE CONTROL?

(Continued from February 28 issue)

SUPPRESSION

1. PROMPTNESS IN DISCOVERY; accuracy in location and speed in intial report.

2. COMPLETION OF THE PICTURE: Getting fuller information - the best obtainable, and calculation of the length of line to be built and mopped up in the first work period.

3. DESPATCH of the most promptly available, worth-while man or men at once, competently instructed.

4. PROMPT MUSTER AND DESPATCH of organized suppression units, including grub for at least one meal, on basis of calculated probabilities, with follow-up made certain as, and if, needed - men, tools, camp equipment, and grub.

5. DESPATCH BEST AVAILABLE FIRE BOSS to the line (District Ranger or other forest officer, if possible.)

6. CONTINUOUS TRAVEL - day or night - en route to the fire.

FUNCTION OF FIRE BOSS

7. IMMEDIATE ATTACK - day or night - at the apparent point or points of greatest danger.

8. SCOUTING FIRE - going around it - checking probabilities - recalculating the job to be completed before the next "burning hour" - determining its critical points.

9. REVAMPING PLAN OF ATTACK and reorganization on basis of (8) considering
   (a) Adequacy of man power and other facilities and means of getting reinforcements, if required.

(b) Subdivision of lines into sectors or sides and providing sector bosses - re- assignment of crews.

(c) Establishment of camps near line, as necessary to reduce walking time to practicable minimum.

10. KEEPING INFORMED at all times of conditions on all sectors, acting upon information from organized sources or personal knowledge. (Kill rumors.)

11. PUSHING A SUSTAINED ATTACK - night and day - insuring closures of every section of line, completion of backfiring well ahead of advancing fire.

12. CONSTRUCTION OF NARROWEST LINE, including necessary backfiring, that will corral the fire in the least time, or use of such other methods as will minimize area burned and cost, mopping up always at the heels of line builders.

13. CONSTANT VIGILANCE in detecting and SNAP IN ACTING upon impending changes requiring shift or expansion of forces coping with each situation before it gets out of hand.

14. PROVISION FOR RELIEF AND REST OF THE FIRE BOSS and change of crews if - the job - including final mopping up - is likely to overrun 18 hours, invariably placing fresh crews on the line at daybreak.

15. ALERTNESS TO IMPENDING EXHAUSTION of local facilities and promptness in call for outside help.

16. COMPLIANCE, WITHIN PRACTICABLE LIMITS, with the rule of written orders from bosses to subordinates.

17 LEADERSHIP OF THE FIRE BOSS - constant, steady, aggressive, assertive, alert and knowing - always on the job in advance of crews counts mightily in units of held line.

18. MOPPING UP - The antiseptic of the fire operation, bearing the same relation to it as the antiseptic treatment of bad body sores - indispensable in the first relief, indispensable throughout the entire course of treatment and can safely end only when all possibilities of spread are "killed."

19. ABANDONMENT OF FIRE - permissible only when pronounced "out" by supervisor, district ranger, or their specifically authorized representative.

GENERAL

1. FALLACY - Gross and Replete with potential disasters. The acceptance of "results" as proof of efficiency of fire control effort in absence of scrutiny of means employed.

2. INSPECTION: Checking of suppression action on going fires, or post-mortems of dead fires - covering as many as possible.

3. PERSONAL ACCOUNTABILITY: Application of its rules in fire prevention, preparedness, and suppression in full accord with existing personnel policies, failure, and successes appropriately recognized and dealt with.

4. WRITTEN RECORDS: Maintenance of such records, covering all essential steps in handling of fires.

5. TIME KEEPING: Employment of trained timekeepers and businesslike methods.

Fuel wood is $12.00 per cord and coal $12.00 per ton delivered in Jackson. We can not afford to use our own product. T. N. T. in D-4 Daily News.

REFLECTIONS OF P. PONDEROSA

By Alva A. Simpson, Custer.

Two excerpts from the private papers of P. Palustris in the Service Bulletin of January 17 apply equally forcibly to existent local conditions on the Sioux division in South Dakota of the Custer: "No economy should be too small to merit our attention", and "The principal purpose is to furnish a demonstration of forest (including grazing) management in a broad way."

There are two schools of thought as to the functions of the Federal Government in the retention and administration of the sparsely timbered divisions in northwestern South Dakota. It is admitted that these divisions are purely local in their influence on economic conditions. The wood products are so limited as to restrict the distribution to an annual maximum of one cord of firewood and 100 ash or pine poles to an individual. The demand is so intense that the full estimated sustained yield is removed each year. This demand is entirely from settlers falling within the provisions of Regulation S-22. The influence of this limited supply of timber extends for a radius of 100 miles over a plains area and through a country devoid of railroad transportation. The early history of the locality shows that a more generous supply of timber was originally existent; that repeated, uncontrolled fires and unrestricted cutting in early days seriously depreciated the stands. Today the remnants are represented by scattered mature individuals and some most excellent stands of reproduction in the 1-20 and 20-40 year age classes. Fire has been absolutely controlled during the 22 years of National Forest administration, the mature timber will provide a limited supply until the young growth becomes available and the future gives promise of many times the present sustained yield. To those of us looking at the situation from a close angle - magnified though our view may be - it seems logical that the functions of federal control are not being extended beyond those which are necessary and desirable. These areas represent truly "a small economy" and just as clearly- "a demonstration of forest management". They are practically self sustaining in relation to income and expense of administration, yet under Regulation S-22 we must sell the timber products at cost; and they represent a well managed forest property. Indirectly they have served to educate the public of that region into a deep and friendly regard for forest preservation, and lastly are serving as demonstration areas of the possibilities of scientific range management in a region where for years to come livestock and livestock products will represent the major income to the public. Economically they are a part of a prosperous community and through the influence of the shelter and scattered timber, the center of the most intense settlement of the present day population.

THEY'RE ALL HERE

By C. H. Thorp, Wallowa

In any group of names, odd combinations are often encountered. In the Forest Service Directory the following are found: Brothers and Cousins; Archer, Carpenter, Shoemaker, Goldsmith, Miller, Sawyer, Baker, and Tinker; King and Bishop; Somers and Winters; Saint and Goodman; Quick, Rush, Ketcham, and Slavem; Coffey, Bacon, Hamme and Egg; Huff and Riggle; Wirth and Merritt; Skaar and Rust; Standing and Walkup; Read and Wright; Coward and Fears; Young, Younger, and Oldham; Cox and Wilcox; Sample and Kissam; Fair and Storm; Snow and Hale; Long, Short, and Small; White, Black, Green, Gray, and Brown; South, North, East, and West; Loving and Fitting; Shank and Frame; and the Carr family - Dodge, Franklin, Flint, and Ford, etc.

EXCHANGE BUSINESS IN D-2.

The exchange business in District 2

was brisk during 1926. Thirty-seven reports were submitted to the District Forester during the year, making a total of 107 in all. Thirty-two of the trades were approved by the District Forester and 36 cases were transmitted to the General Land Office by the Forester. Twenty cases were brought to final consummation during the year. — E. W. T.

MILLION DOLLAR BUSINESS

By F. E. Ames, D-6.

For the first time during any similar period, receipts for timber sales in D-6 ran over one million dollars! The total was $1,076,096.45, compared to $842,416.15 last year, an increase of 28 per cent.

Incomplete figures of timber sold and cut indicate the following:

Commercial Sales

Year	Sold		Cut	
	M ft.B.M.	Value	M ft.B.M.	Value
1926	243,163	$647,389	418,666	$1,087,384
1925	623,728	1,355,888	381,889	862,390

DO FIRES DESTROY GAME?

By E. E. Stock, Minidoka.

While I was on the Loon Creek Fire, Challis Forest, in late August, 1924, I saw the carcasses of two buck deer on the burned area which had been killed by the fire.

The two deer were in a small draw leading into Cottonwood Creek on the east side of Loon Creek. It appeared that they had been trapped by the fire, and were within 100 or 150 feet of each other. One was quite badly burned with nearly one-half the hide gone and the flesh gone from the top half, while the bones and bottom half were still in proper shape. There were no tracks or signs of any animal or bird having been there. The other deer seemed to have been caught in a less heated spot and its whole body was in the natural position, except that the hair was burned off to the hide almost as slick as if it had been shaved.

I was hurrying to put out some snags still burning on the area, and thought that I would be back that way and take in the head of the deer first described, as it was good four points and well slicked off. The other deer was smaller and only three points, and the lower horn was more fire scarred. We got the fire out sooner than I expected and I never got up in this area again.

I mentioned this to a number of the men but there was little or no comment, so I supposed that it was not an uncommon occurrence.

Generally I had at least one man with me but this day I left the other fellows at work and I went out to the snags alone as they were small. Therefore, as far as I know no one else saw them.

Just how much fish and game are destroyed by fire I do not know, but these two deer were undoubtedly killed by that fire.

COMBUSTION IN FOREST FIRES TO BE STUDIED

Dr. L. F. Hawley, of the staff of the Forest Products Laboratory left recently on a trip to the forests of the West and Northwest in the interest of a chemical study of combustion in forest fires which may be undertaken at the Laboratory. Dr. Hawley expects to visit the Northern Rocky Mountain Forest Experiment Station at Missoula, Montana, the Pacific Northwest Forest Experiment Station at Portland, Oregon, and the new California Forest Experiment Station at San Francisco, before returning.

The severity of recent fire seasons has intensified the effort to discover the exact conditions favoring and accompanying forest fires and has resulted in a search for refinement of method all along the line of forest fire prevention and suppression.

Service Bulletin

U.S. FOREST SERVICE
(Contents Confidential)

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A TALE TO DRAW CHILDREN FROM THEIR PLAY

Tradition has it that once at a White House reception, President Roosevelt spied at a distance on the lapel of the coat of a little jovial man, the small blue emblem of that most distinguished decoration, the Congressional Medal of Honor. He fairly leaped across the room, seized the little man by the shoulders, pointed to the emblem, and said, "Please tell me how you got it!"

Some of us have been lucky enough to hear this enthralling tale from the lips of Will C. Barnes himself. Recently Joe Deganahl, a reporter at New Haven, succeeded in drawing Mr. Barnes out and published an account from which we quote. Back in the early 80's Barnes had enlisted in the Army. He had previously worked on stringing the first telephone lines ever put up and was sent to Fort Apache, Arizona, as a telephone expert.

"The reservation was full of hostil Indians. Trouble was expected soon but the little group of half a hundred men protected by the Government fort felt quite equal to any emergency which might arise. Barnes was placed at the Fort as a telegraph operator and it was through him that the outpost kept in touch with the garrison nearly 90 miles away.

"Then one day the wire was cut. The Indians had arisen and in their unorganized way were preparing to attack the stronghold of Federal soldiers. Down at the Ferry where the Government had stationed three men, the Indians had taken possession and had disposed of the trio more easily than it takes to tell about it.

"At last their tribe had gathered sufficient numbers to surround the white colony of soldiers. 'A skirmish took place and seven men and one American officer fell,' Mr. Barnes said. 'We were sent out to bury the dead,' he added with a smile which never fails him and which always keeps his hearers guessing as to his next topic. A sergeant and I were assigned the job of protecting the diggers from an attack from the woods, for we were about a mile from the Fort at the time, on the edge of a clearing. We were startled by a salvo of bullets.

"'The horses bolted and the grave-diggers, thankful that they had progressed so far with their work, slipped into the excavation out of danger from the fusillade. But the sergeant and I had no desire to be killed in a cemetery or more specifically in a grave we were digging for someone else, so we started hiking across the mile of open space in time which was not recorded but which I am sure would stand well beside track results. We were able to keep the pack of Indians at their distance with our rifles for we would stop from time to time on our trip across that very wide plain and take a few pot shots at them.

"'From the garrison the soldiers could

see us hastening to their portals and even if it did spoil a good act the officer in charge sent out a squad of horsemen to escort us over the last few hundred yards of the run.

"'The situation was getting bad, there could be little doubt about that. There were 500 Indians surrounding us, our wires were cut and there was no way to get word through to the garrison. Something would have to be done so the commanding officer called for volunteers and I, being young and foolish, decided to go. A civilian guide, so familiar to the frontier days, and myself volunteered.

"'Just after dusk, we slipped out of the fort with our horses and well loaded with ammunition. There was a wagon road which led up a long hill through the woods and the guide thought it was best to take that. I, however, had been working the mountain which overlooked our post, making repairs in the telegraph line, and I knew a winding trail which zig-zagged up a cliff and which I thought would not be infested with Indians. My guide was all in favor of the road, I, of the trail. We each had copies of the dispatches to the commander of the relief post, so we split.

"'I got up the mountain all right and then looked down to see the Indians camped at the base of it. I could not help wondering if my companion had gotten through by the road. From now on there was no trail for me to follow, but I picked out a star and leading my horse through the thicket headed straight south where I hoped to join the road he had traveled beyond the danger zone. I finally came to it, got down on my hands and knees, took the chance of lighting a match but could find no signs of recent foot prints.

"'I did not think anything more about it, as I imagined I had merely beaten him to this point. We had made no arrangements to meet so I kept on. Later I learned that he had been killed.

"'But my troubles were not yet over. The road came to a river, where the ferrymen were stationed. I saw a squaw woman cooking a meal where the soldiers were usually posted and I knew that the worst had happened to them.

"'There was no other ford to the river and I could never have gotten through there, so I led my horse up the bank, cutting up my saddle blanket and tying pads on his feet to make his hoofs silent. Then, when I thought I had gotten far enough up the stream, I tied my gun on the pommel and waded my horse into the river, making him swim me across the stream. Then, as a salvo of shots fell about me, I galloped off up the road and got away from them. A little while later, I met the detachment of half a hundred soldiers on the way to our rescue'

"And here Mr. Barnes' story ended.

"But the whole yarn was not spun. When questioned, he admitted that they had led him out on the parade ground a few months later and had pinned the Congressional Medal of Honor on his breast."

FROM LIZARD PASTURE TO A NATIONAL FOREST

By Leon C. Hurtt, Nezperce

Every now and then I read in the Service Bulletin articles from or about the Nebraska National Forest. Fifteen years or so ago a bunch of a dozen or more forestry students journeyed from the halls of learning to Halsey, Nebraska, and were initiated into some of the arts, practices, and mysteries of making a forest grow where none grew before. There were two native cedars overlooking the river from the bluff to the northwest of the nursery. These cedars, to the best of my recollection, were the only native conifers on the forest.

It was at the Bessey Nursery where we, as well as the preceding and a number of succeeding classes, first came in close contact with such things as conifer seedlings 2-2s, transplants, sulphuric acid treatment, "damping off", sandhill lizards, and the broiling sun on our backs as we laboriously endeavored to get some damp sandy soil into contact with the roots of the jack, red, and yellow pine seedlings from the nursery before the same gasped and died of thirst in our hands. Fifteen years ago, and now Mr. Johnson says the Nebraska is furnishing yellow pine seeds to carry on planting elsewhere!

If there was ever a more discouraging job or one requiring more vision and tenacity to make a National Forest out of the treeless Nebraska sandhills where nature had apparently not intended for a forest to grow, I don't know of it. Apparently they are making a go of it, for it is pinch hitting in supplying seeds when the crop on other forests is short. I believe I read at one time of a timber sale on the Nebraska!

And now I come to the reason for writing this. I wonder how many of the students that helped to plant poor distressed seedlings in the sandhills have the same curiosity that I have to know more of the results of making a National Forest out of a series of treeless Nebraska sandhills? If there are a few with this same curiosity, we might call ourselves members of the Planters Club. And if there are enough of us to form the Club, do you suppose there is one with enough pure and unadulterated gall to approach a brother Forest Supervisor or other appropriate officer of the Nebraska and ask him for a copy of some progress report that will give us a bird's-eye view of the history and development of the sandhills from a lizard pasture to a National Forest? I move you that if there is a member of the Planters Club who is curious to see some pictures and a general bird's-eye view of the Nebraska as it is in 1927, and who is also a member of some District office or the Washington Office and who is thus naturally shameless about asking for reports, that he be requested to tactfully approach the proper officer of the Nebraska on this matter.

You know we all at times get a bit low in the mind and inclined to be discouraged at the progress being made in National Forest administration. If substantial progress has been made in building a National Forest out of Nebraska sandhills in 15 years, will it not make some of our other jobs look easier. What say you brother planters or others?

(The Editor has had this motion seconded, and now he will be glad to corral the names of those above mentioned heroes of sun and sand in the pages of the Service Bulletin. Also he knows Jay Higgins, Super. of the "Forest Founded on Faith", having once helped him fix his furnace. If Jay can furnish the "snappy brochure" perhaps Cochran will dig up a set of photos for circulation to the Planters.)

COMPLETING THE CYCLE

When Edger L. Perry, formerly a Ranger on the Sante Fe, was recently named State Game and Fish Warden by the State Game Commission of New Mexico, the final chapter of an interesting "reform" movement was written. In 1920 the New Mexico Game Protective Association, which had had a long struggle to get game protection out of politics, proposed a new type of game law, which would create a non-partisan commission with the power of appointing the State Game Warden as its own administrative agent and - still more important - of regulating seasons and bag limits, creating refuges and rest grounds, etc., and doing many other things in game management that in most States are cumbrously done by the legislature if done at all. The Association then persuaded both the Republican and Democratic parties to endorse these principles in their State platforms.

Owing to political complications, the law was enacted minus the provision for appointment of the State Warden by the Commission. This omission was remedied by a recent amendment, and the New Mexico Game Protective Association at last got what it started out 7 years ago to get - a Game Warden directly responsible to the Game Commission, which has power to do about what it wants to for the intelligent management of game. During this time the Commission has created a system of State game refuges and rest grounds for migratory birds, organized a number of fish hatcheries, closed streams to fishing, and exercised other powers.

Montana later adopted the New Mexico law almost in toto, and Wisconsin now has a bill before the legislature embodying most of its provisions.

CLEAN YOUR LANTERN SLIDES

I learned recently that some of our men using slides have not yet learned that these slides must be cleaned of finger marks and other foreign material, possibly before each lecture. The lenses of the machine as well as the globe should also be kept clean. Unless these details are attended to the pictures will be dull and uninteresting. Cheesecloth leaves little lint and by breathing on the slide will clean it very well. Cracked slides should be replaced as soon as possible. Usually it is the cover glass that is broken and replacement can be made without making a whole new slide. - H. N. Wheeler.

THE SMOKE CHASER'S DREAM

He thought he knew every kink and turn
There was in the job to learn;
He visualized each object plain,
Till the picture was clear in his brain,
He fell asleep as the stars peeped out
Leaving each object without a doubt
As clear in his mind as sparkling streams--
And he passed at once to the land of dreams.

The sky grew dark and the thunder crashed,
And the sip, sip, sip, of the lightning flashed
Awakened him not, his dream went on
Till the first faint dream of another dawn.
He visioned a job with roseate hues,
Where in calm content he could lie and snooze--
A sound was heard, he arose with a groan--
To answer a call on the telephone.

He gazed afar at the rising smoke,
That seemed to cling to the hills like a cloak;
Then hurriedly grabbing the usual things
He flew away like a bird on wings.
He built a mile of trench around
The sweeping blaze before he found
His trenches lost, for a fitful breeze
Had sifted sparks to the nearby trees.

L'Envoi:

But he still was asleep in his small pup tent,
His legs were stiff and his back was bent,
His stomach was empty, his mind a haze--
For he'd been on a fire for twenty days!

Lester A. White, Santiam.

TRAIL MARKING

By Ira T. Yarnall, White Mountain

In trail marking it is essential to use the most permanent system. Even in conservative New England the people have a taste for "knickknacks" and the Forest Service contributes trail signs, targets, arrows, etc., to such collectors. The placing of metal disks on trees would most certainly add a new article for collecting, which would entail an annual drain on the visible supply.

Painting has the adavntage that it does not disfigure or injure the tree. However, it does not last forever, and must be frequently retouched. It is not convenient to carry paint while on other work, so if paint is used it is necessary to make a special job for retouching such markings. However, foresters all carry axes, and new blazes can be made when traveling over the trail. Paint is not readily seen at night with an artificial light, while blazes can be.

The boundaries of the lands purchased under the Weeks Law in the Eastern District were marked with red paint until two years ago. The experience of over twelve years showed that lines marked in that manner must be repainted every 5-10 years to even retain the line. To my notion, it would be necessary to repaint every five years many of our trails if they were marked in that manner. The Forest Service found it next to impossible to keep the exterior boundaries painted, and for that reason, adopted a standard boundary blaze. Is this any indication of what would happen if all of this discussion finally leads us to mark our trails with paint?

WISCONSIN TO HAVE NATIONAL FOREST

Wisconsin's first National Forest will be established soon if the National Forest Reservation Commission gives its approval to U. S. Forest Service plans already approved by the State of Wisconsin. Governor Zimmerman jointly with the Wisconsin Land Commission and the Commissioner of Conservation has approved the proposal under the terms of an enabling act passed by the 1925 State Legislature which extended permission to the Federal Government to acquire not more than 100,000 acres for the establishment of a National Forest in Wisconsin. The purchase of the full 100,000 acres is contemplated in present federal Forest Service plans.

The area approved for purchase lies in Forest and Oneida counties. Excellent stands of young hardwoods, hemlock, and white pine exist on the tract, and it is described as one of the best demonstration forest areas in the Lakes States. Demonstrating the practicability of forestry and encouraging the practice of forestry on private holdings and cut-over lands and in the farm woodlots of the state are the main objects behind the founding of the new National Forest. Planting will be necessary on only a part of the tract and the natural young growth already established on a large part will become a producing forest much sooner than would other plats in the state. -- Forest Products Laboratory.

ARE THERE OUTLAW BEARS?

Clark Russell recently killed a large black bear which he caught in the act of killing a calf, states Ranger Ares in the Apache News. He killed him with one shot from a revolver at considerable distance, which, as I can testify, shows considerable skill and nerve, since I once shot at one of these brutes at a distance of ten paces with a high powered rifle and missed him a mile. The fact that the bear was caught "red-handed", as it were, is damaging evidence to our theory that the black bear is not predatory and should be protected. Possibly the calf was found asleep or in some other way presented itself as such easy prey that Bruin could not resist the temptation. Anyhow it should be classed as an isolated case and the good work towards getting legislative protection carried on. -- District 3.

[We wish Ranger Ares had told what happened when he missed that b'ar. This is Hamlet with Hamlet left out. -- Ed.]

THINNING SOUTHERN YELLOW PINES?

Extension Forester H. H. Tryon of South Carolina writes to W. R. Matteau as follows concerning the two methods of thinning - "from above" and "from below".

"I use both the German method and the 'eclaircie par la haut' plan with equal success. Of course, stand conditions are the chief factor in making the selection. Market conditions I would rate secondary. I do so because, while it may not be the best procedure from a business standpoint, it is usually the most direct assurance that the prevailing high growth rate will be thoroughly utilized. In other words, I'm gunning for chances to play up this natural resource through the establishment of concrete examples. That the cash side of sales from thinnings is a heavy argument, I well know; but it appears to me that it is more important for my section to place the greater emphasis on GROWTH POSSIBILITIES. I want to bring about as rapidly as possible, a statewide realization of this natural asset. Farmers, watching me set out plantations have said "We'll all be gone before those trees are big enough to sell." Yet in the Coastal Plain, I've seen trees that would square 12" dbh, at only 16-17 years old.

"Concerning the ease of application, it seems thus far, like an even chance. A field trip, comprising a running fire of explanation, selection of examples of crown class, supplemented with drawings (usually made on a patch of smooth sand) and increment borer work has convinced EVERY PROSPECT thus far.

"The chief difficulty with either method is that, left to themselves, farmers are too cautious. I believe that when you THIN, you should THIN. Have a rather heavy hand to it. It is better to err on the side of over-cutting.

"Here follows naturally some pet conclusions of mine with reference to management of loblolly pine stands. This species is evidently more tolerant than P. palustris. And in numerous cases where "unintentional" thinnings have been made -- i. e. small selection cuttings, or clear cuttings in groups, perhaps for a few posts or rails or fuel -- and when fires have been kept out, of course, the advance growth of young pine is startling. I feel strongly that a form of a modified shelterwood system is feasible. Something along the lines of the practice of the Jackson Lumber Co. is my idea. It involves several cuttings, by the French method. The ripe trees are taken each time; the overwood gradually lessens in density; and the ground is stocked in advance of the final cutting. Further, this plan admits only partial sunlight, and thus keeps down an invasion of the site by "die Unkraut" (I think that's what the Jerries call it). I have seen it done in loblolly.

"Of course the intermittent recurrence of seed years must be considered in planning cutting operations.

"The German method owing to its tendency to maintain almost full shade, does not seem so well adapted to a steady maintenance of the site in timber. Your germination will not be so high. And when you cut clean, your advance stocking will be perceptibly less, while any advance growth of scrub oak (our chief weeds here are MARILANDICA and CATESBEII) will be stimulated to a disagreeable extent. And intermittent seeding is an added obstacle."

Foresters throughout the loblolly pine belt will be interested in Mr. Tryon's discussion. He has brought out good points in favor of each method. I would add that the low thinning method is clearly the better one to use in thinning to develop young stands. The high thinning method is likewise applicable to middle-aged or old second-growth stands. The financial argument of intermediate returns is very appealing as it helps in carrying the investment.

HAMEL, ITINERANT MISSIONARY

Supervisor A. G. Hamel, of the Superior, has in the past few weeks visited eight of the Forest Schools from Yale to Minnesota, giving lectures on the work of the Forest Supervisor, telling the students of life in the Service, and answering innumerable questions from faculty and students. That he has not had much academic repose is shown by a letter from Professor Hosmer of Cornell, who says:

"Mr. Hamel arrived in Ithaca on Friday, February 11 and left for Michigan on Monday night, February 14. During that time he gave four formal lectures to our professional forestry students, had two or three group discussions with members of the student body, talked with a considerable number of individual students, and had conferences with the whole group and individual members of the forestry staff.

"Mr. Hamel had his subject matter in excellent shape, presented it in an interesting and vivid manner, and in general made everyone with whom he talked feel how vital a work the Forest Service is doing."

This trip was an experiment toward making the work of the Service more real to the students, and it is hoped that each year some specially qualified Forest officer can be detailed for a similar trip. Mr.

Hamel's salary and expenses were paid by the Schools.

LANDS DOES A "LAND-OFFICE" BUSINESS

By C. J. Buck, D-6

In Oregon, for the last six months of 1926 only, final agreements were reached for over 14,000 acres, which, it may be casually remarked, is as much land as actually passed to patent in all the Forest Service exchanges, during the last fiscal year. Washington's final agreements cover 16,480 acres, since July 1, 1926. Total 3-way exchanges in D-6 during the last six months are valued at $65,713. The 30,567 acres being acquired are being paid for by stumpage out of timber sales and by timber-cutting rights, amounting to 7% of the expected timber sale receipts for F. Y. 1927. No land has been traded away, the whole acquisition being a net increase in National Forest area.

Negotiations with owners of private cut-over lands are going forward. A large area of cut-over lands on and near the Deschutes and Whitman Forests looks encouraging. Partially cut-over lands of nearly 16,000 acres on the Wenatchee were acquired in 1926; this was an outstanding accomplishment.

In exchange work results are reached only by giving attention to cases every few weeks or every few months, either in conferences or by letter. The Rangers are beginning to take an interest in exchanges which will mean more acquisitions. THE NUMBER OF EXCHANGES ACTUALLY AGREED ON OR COMPLETED IN ANY ONE YEAR DEPENDS DIRECTLY ON THE NUMBER WHICH ARE KEPT in motion during the previous year or two. It usually takes a year or two for the owners to reach an agreement on our valuations.

PORTABLE PUMPS PROVE POTENT

A survey just completed by private protective associations shows that there are practically one hundred portable gasoline fire pumps in north Idaho. This survey shows that there are sixty-one belonging to associations and lumber companies, and thirty or forty owned by the Forest Service.

The pumps most commonly used are the Pacific, the Ross, and the Northern. A few Evinrudes are also being used.-District 1.

FORECASTING INSECT EPIDEMICS

By J. H. Miller, Bureau of Entomology

We have already discovered certain tendencies that give us some indications of what we can expect. For example, it is pretty well settled that barkbeetle epidemics in mixed stands are likely to be less severe and of shorter duration than those in pure stands. Outbreaks developing from windfalls, burns, and slash are usually sporadic and subside within a year or so. Climatic influences and the relative abundance of bird and insect predators give some basis for predicting probable increases or decreases. The further advance of research work along this line will no doubt make the forest entomologist much less of a gambler in forecasting the future. But for the present we are obliged to recommend control measures mainly on the basis of conditions as they exist on the ground at the time rather than on what we can expect them to be in another year. - Taken from Western Forest Insect News.

A HUNTER'S MECCA

The following interesting figures have been compiled by Mrs. Fleming, Secretary of the Sportsmen's Association, in regard to the hunting season of 1926: Total number of hunters on Gila National Forest, 1015, of which 90 were non-resident hunters. These outsiders came from the following states: California, Arizona, Colorado, Texas, Oklahoma, Kansas, Indiana, and Pennsylvania. This shows an increase of more than 100 hunters over 1925; the record showing a total of 901 for that year. A total of 417 deer and 106 turkeys were killed in 1925. The percentage of deer killed to the number of hunters in the field is the same for both years, that is to say, one deer killed to each 2.4 hunters. -- District 3.

NEW USE FOR BACKFIRE

State Forest Ranger Perry Swedberg, of Moose Lake, Minnesota, discovered an old Indian, very drunk, in front of a rapidly advancing forest fire. It was impossible to arouse him, and the nearest safe place was half a mile away. The ranger did not relish the job of carrying the Indian that far, and there was other work to be done. So he quickly lit the grass all around the helpless red man, stamped out the blaze on the inner side of the circle, let it spread on the outer side, and went his way. When the forest fire was under control other Indians were told where to find their drunken tribesman, and discovered him unharmed. -- District 2.

"WOODMAN SPARE THAT TREE"

"This popular quotation from America's outstanding poet is 'put into practice' by the Hedlund Lumber & Manufacturing Company in its extensive operations throughout the Inland Empire. In its recent acquisition of 67,000,000 ft. of timber on the Colville National Forest from the U. S. Forest Service we find the Hedlund Company working shoulder to shoulder with the Government for preservation of the country's timber on practically all the 500,000,000 feet of timber controlled by them

"Realizing that good forestry means use - use of all forest resources along a definite plan that builds up rather than destroys these resources - the Hedlund Company is following the plan mapped out by the Forest Service for the perpetuation of a mature crop of timber for the future generations on this tract. A modern railroad is being constructed into the area to allow for a better and more complete utilization of the timber. Practical lumbermen and practical foresters will watch this plan with interest.

"The large Hedlund mill at Spokane puts the finishing touches to this plan of utilization and can be compared to the modern packing plant that 'uses everything about the hog but the squeal', as everything from the slabs which are sold as fuel to the clear lumber is used."

The above is quoted from "CHIPS" the house organ of this Company.

ARIZONA LEADS IN AMOUNT AND VALUE OF TIMBER SOLD

Table 5, page 26 of the Forester's Annual Report shows the quantity and value of timber sold for the calendar year 1925. The total amount of material sold from the National Forests was slightly over one billion seven hundred and seventy-one million board feet. Of this amount Arizona's sales of almost 442,000,000 exceed sales from any other states, or 25% of the total sales. The value of the timber sold was over $1,200,000. There was cut in Arizona for the year 1925, almost 48,000,000 feet. -- District 3.

(California papers please copy)

Can the forester live to see his own handiwork? Speaking of the work of an old Swiss forester the Journal Forestier Suisse says: "In place of the meagre overexploited stands treated by clear cutting such as one encountered 30 or 40 years ago, there are now stands in full production, well treated and of high-grade material, which display the activity of the competent silviculturist who loves his art."

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SOME ASPECTS OF A STUDY OF LEADERSHIP

H. C. Ramsower, Director Agricultural College Extension Service of the Ohio State University, in making a study of leadership, listed the following qualities:

BROAD KNOWLEDGE AND INTERESTS - Measure of Interest Outside Job. ** TECHNICAL KNOWLEDGE - Knows Subject Matter of Agriculture. ** COMMANDING PRESENCE - Strong, Upstanding Attractive, Vigorous. ** FAITH - Believes in Job, Not Easily Discouraged. ** ENTHUSIASM. ** COURAGE - Encounters Difficulties With Firmness. ** VISION - Looks into Future, Anticipates. ** ABILITY TO PLAN AND ORGANIZE. ** POWER OF EXPRESSION - Speaks Effectively in Public. ** RESOURCEFULNESS - Always Ready in Emergencies. ** JUDGMENT - Conclusions Generally Sound. ** INITIATIVE - Starts New Things, Thinks Ahead of Crowd. ** INTEGRITY - Honest, Morally Upright, Fair. ** TACT - Meets Delicate Situations Well. ** PERSEVERANCE - Does Not Give Up Easily. ** FRIENDLINESS - Liked by People, Mixes Well, Magnetic. ** TOLERANCE - Appreciates Opinions of Others. ** UNSELFISHNESS - Puts Others Forward, Gives Others Credit. ** SYMPATHY - Genuine Human Interest in Associates. ** COOPERATION - Plans and Works Well With Others.

The poorest agents were conspicuously lacking in enthusiasm, vision, ability to plan and initiative, and these were the qualities in which the best agents ranked highest. It is interesting to note that among the last qualities listed on the chart, such as tact, friendliness, tolerance, unselfishness, sympathy, which are peculiarly a part of one's total self and scarcely susceptible of training, are possessed by the poorest agent in fair degree at least as compared to other qualities which have training possibilities.

The qualities designated as "commanding presence" and "power of expression" are not as outstanding in the best agents as one might expect to find them, and this is perhaps a good sign, since it seems to indicate that the most successful agent is not necessarily the political campaign type, the "hot air" artist, the emotionalist, but rather is he recommended by the soundness of his program and the constancy of his methods. He must wear well with the people and impress them with genuine sincerity of purpose. -- D. 4 Bulletin.

SCORE ANOTHER FOR THE FOREST SERVICE

By D. F. McGowan, Washington.

The Senatorial Investigation of the Herrick timber-sale contract has resulted in a complete victory for the Forest Service.

The proponents of the investigation charged that there was fraud and collusion between certain (but unnamed) officials of the Forest Service and Mr. Herrick in connection with his contract for the cutting of approximately 890,000,000 feet of timber on the Malheur National Forest.

The charges were thoroughly investigated by a Committee composed of Senators Stanfield, Cameron, Means, Walsh of Montana, and Kendrick. Approximately 20 witnesses were examined and approximately 1700 pages of testimony were taken. Colonel Greeley and Messrs. Carter, Granger, Ames, Hoffman, and Dutton appeared for the Service. Messrs. Herrick, Girard, Klobucher and others appeared for Mr. Herrick.

Upon the conclusion of the hearings, the Committee submitted a report (Senate No. 1695) which, among other things, contained the following findings:

"It was suggested that Mr. Herrick obtained the contract from the Forest Service through fraud and collusion on the part of former forest employees, viz, Messrs. Girard and Klobucher. Mr. Girard and Mr. Klobucher were employees of the United States Government in the Forest Service at the time the Forest Service entered into the contract with Mr. Herrick for the cutting of said timber, and they have since joined him in this enterprise, receiving salaries and owning an interest in the railroad company and the sawmill company that is to handle the timber. The evidence shows that this arrangement was made between Mr. Herrick and these members of the Forest Service subsequent to the filing and opening of the bids for the timber contract.

"There is no evidence in the testimony to substantiate a charge of conspiracy, fraud, or collusion on the part of anyone connected with the so-called Herrick contract, or with the Forest Service or Mr. Girard or Mr. Klobucher, and it is the opinion of the committee that these gentlemen should be wholly exonerated from any charge of conspiracy, fraud, or collusion".

(Mr. McGowan was the attorney for the Forest Service in this investigation. -- Editor.)

WHO SHOULD MAKE THE PLAN?

By T. Krueger, Gunnison.

To anyone familiar with discussion and practice in the making of timber management plans, the recent lengthy discussion in the Washington Service Committee meeting has a familiar sound. Who should make the plan is a question which has been debated back and forth for years. The practice in different countries has varied. There existed for years in the German Public forests a special office which revised the plan of one forest after another and then handed the plan to the Supervisor for execution. An attempt was made to get around to all forests every ten or twenty years and the idea behind this method of coming back and doing it over again at intervals was that "practice makes perfect". The drawbacks were:

1. The Supervisor had to accept and execute a plan, which he might have had a chance to criticize but had had no hand in making.

2. If the Supervisor objected to the plan, the upper office insisted on it. Presumably it regarded its own plan as more competent than that of the local man, who did not make it.

3. Very often the older, experienced, and competent men in the management plan office spent very little time on the forest, and left it to men fresh from school to judge very important points.

It seems to me that the same drawbacks exist with reference to grazing management plans, and I believe that in the ordinary case the range management plans should be made by the local force. The Supervisor should decide the more weighty questions, such as class of stock, seasons, etc., but it should be up to the Ranger to work out the details. In effect it should be a plan made and willingly accepted by the Ranger; and not something that is made by someone else and crammed down his throat. This does not mean that there is no place for the grazing research man in the formulation of grazing management plans. The more practical technical information that can be included in the plan, the better, and all wide awake Rangers that I know of are glad to get the benefit of the specialists' knowledge. There is no reason why there could not be wholehearted cooperation of all in the building of a grazing management plan. The so-called practical man and the so-called technical man, the administrator and the scientist, all have their proper place in the building of the plan. In one place it might be absolutely necessary to have an intensive reconnaissance as foundation for a usable plan, in another a very extensive one would be sufficient and all that was justified at the time.

As I see it, there is one great difference in timber management plans and grazing management plans, that is, the period of time covered, for in timber management plans we deal with periods of from 10 to 200 years or more. If a mistake in marking, allocation of cutting areas, etc., is made, it is often years before it can be corrected. On the other hand, in grazing management work conditions often completely change in the course of a very few years due to different methods of handling, changed economic conditions, and a number of other reasons which might be mentioned. This means that in grazing management plans the local force must be trained so as to be able to sense and recognize these changes and to build adequate plans, which they are capable of revising without waiting for a detailed reconnaissance or the decision of Board of Research grazing men. However, regardless of this, the more grazing research men we have who can act as teachers and advisors to the local forest forces, the better.

SOLD AT LAST

For the past eight years there has been in District Office stock an item that has caused considerable amusement. Tucked up under the rafters of the storeroom was a real, genuine, factory-made toboggan that drew many a more or less witty remark as beholders saw it for the first time. The toboggan was a left over from a winter elk counting expedition made on the Sitgreaves about 1919. Yesterday Road Superintendent Kissam in from his winter road camp on top of the Sandias saw the togoggan and it became part of his plunder on the spot. Working in deep snow, the toboggan will be used to drag out the hot lunch at noon for his timber fellers and fill a real need on the job. Kissam expects to find his cook returning to camp in style and speed and believes a back stop in the form of a snow bank will be needed to end the return trip somewhere short of the foot of the mountain. -- District 3.

STARVATION OF ELK TO BE STOPPED

The problem of preventing the starvation of the southern Yellowstone elk herd in bad winters in the region of Jackson Hole, Wyoming, was discussed at a four-day conference just closed in Washington and out of it has come the first complete plan of administration that considers all the conditions confronting the largest single herd of these magnificent big-game animals. The commission considering the problem was called together by the Secretary of War, chairman of the President's National Conference on Outdoor Recreation. Those in attendance were a unit in believing that the appalling tragedy resulting from the starvation of great numbers of elk in severe winters must stop, and the work of the commission was directed specifically to that end.

It was recommended that the Federal Government acquire certain ranches and other private lands, which, if added to the areas of the existing Federal game refuge and the adjacent property of the Izaak Walton League, would provide feed to carry the elk through the bad winters. Proposal was also made that the Biological Survey conduct as soon as possible a comprehensive investigation of the life history of the elk and of conditions bearing upon their maintenance in suitable numbers. It was also recommended that an advisory board, made up of representatives of the State Game Commission, the Forest

Service, the Biological Survey, and the local stockmen's Dude Ranchers' associations meet each year at Jackson to review existing conditions and to recommend such steps as should be taken to promote the general program for the welfare of the elk.

COMPULSORY FIRE PATROL LAW HELD VALID

By H. P. Dechant, D. 5.

The validity of the State Compulsory Patrol Law was fully sustained by an opinion rendered in the Superior Court of Nevada County by Judge Tuttle on February 25. The case was that of the State Board of Forestry versus C. W. Kitts, and related to the protection of the timber lands owned by Kitts in Nevada County. Kitts refused to contract for the protection of these lands with the State Board of Forestry. As a consequence the State contracted for their protection with Forest Supervisor Bigelow, who gave them the same degree of protection last summer as was given to adjoining National Forest lands. The State Board of Forestry authorized a lien covering the cost of this patrol to be filed against the land of the defendant. The State was represented in the case by District Attorney W. E. Wright and H. P. Dechant, Assistant to the Solicitor, U. S. Department of Agriculture. It was clearly brought out by testimony rendered by State Forester Pratt, Forest Supervisor Bigelow, and State Forest Ranger Sharp that the lands of Kitts had been adequately protected during the past fire season.

As a result of representations made by the State and Federal foresters, Judge Tuttle rendered a decision to the effect that the lien filed by the State Board of Forestry on Kitts' land should be foreclosed in case of his failure to pay the patrol fee to the State

This is the first test of the State Compulsory Patrol Law in the courts of California and will doubtless lead to a more thorough cooperation on the part of timber owners of California with the State Board of Forestry.

FIRE CONTROL OR FIRE SUPPRESSION - WHICH?

By E. Murray Bruner, D. 7.

The February 14 issue of the Service Bulletin under the heading "Lookout Tower" defends the use of the term "fire protection" in preference to "fire control". If the chief connotation of "fire control" is to STOP fires after they start, as the article in question states, then, pray tell, what does the term "fire suppression" connote? Is "fire control" synonymous with "fire suppression"? I do not think so. I believe the men in the field who actually handle our forest fires quite generally understand "fire suppression" as embracing all activities necessary to stop the spread of going fires and to completely extinguish them.

A given fire is said to be "under control" or "brought under control" when in the course of the activities carried on to stop its spread and extinguish it the fire fighters have gained the upper-hand of the situation by cutting off its advance or spread so that it becomes confined to a definite area. Thus in the case of an individual fire "control" is nothing more or less than a phase or definite status in the progress of the fire suppression job. To bring a going fire "under control" is practically the same thing as to "corral" it.

While the term "under control" is used in reference to individual fires, the broad term "fire control" signifies the sum total of all organized efforts to master the forest fire problem or to effectively handle the forest fire menace in all its phases. The employment of "fire control" in this sense is analogous to the use of the term "flood control" to denote the wide field of activities or groups of activities which go to make up the entire effort to effectively handle the flood menace.

First, there are the true flood prevention activities such as the maintenance of forest covers on the headwaters of streams.

Then there are certain preparedness measures such as the provisions of storage basins or the building or reservoir dams, and the construction of levees. Finally, in addition to the prevention activities and preparedness measures, there is the concrete job of actually handling each individual flood which may occur. And so it is in the case of "fire control". We have our prevention activities and preparedness measures and also the job of taking care of each fire which actually occurs, and this latter job is "fire suppression" and not "fire control".

We have the term "forest protection" which means protection of the forest from destruction or unnecessary injury. More generally "forest protection" involves activities to protect the forest from one or more of such devastating agencies as fire, insect depredations, fungous diseases and destructive lumbering. Do we say "bark beetle protection" rather than "bark beetle control", "chestnut blight protection" rather than "chestnut blight control", "white pine blister rust protection" rather than "white pine blister rust control"? No, we invariably use the word "control" and not "protection" in each of these cases, so why should we not say "fire control" instead of "fire protection" when we mean the protection of the forest from the menace of recurring fires?

I cannot subscribe to the suggestion that we might as well acquiesce in the use of the term "fire protection" or the assumption that it has become an established short cut of speech. I cannot believe it is now a firmly established term in the vocabulary of the public. On the contrary, I believe it is entirely within the power of the forestry profession to effectively eliminate the term "fire protection" and in its place bring into general usage the even shorter and far more appropriate term "fire control".

DOBBIN COMES BACK

An Associated Press dispatch February 19 from London says: "Taxation is putting the lowly horse back into style in London, displacing the automobile. One firm now has sixty more horses than before the war, and is still displacing mechanical vehicles with horses whenever there is an opportunity. A good 'vanner' now can be bought for 40 pounds, and will do comfortably anything up to 150 miles per week. A single horse can be kept nowadays for 1 pound to 25 shillings a week, and in a big stable this can be reduced to 15 shillings. With care, a horse doing ordinary work should serve for fifteen years. Horses have been found more economical than motor vehicles."

(We hope he will come back to the National Forests, too. For real travel efficiency - not the kind spelled with a capital E - give us a rattling good buckboard, a spanking good team of cayuses, and a saddle and pack-saddle to be mobilized when we get to the end of the road. The air is sweet this morning and the sun shines warm through our office window. - The end of the road eh? - Ho-hum!) Ed.

"TIMES-PICAYUNE" WILL HAVE AMERICAN FOREST WEEK ISSUE

A special sixteen-page section printed on paper made from Southern pine trees will be published by the New Orleans "Times-Picayune" on Sunday, April 24, the first day of American Forest Week, according to word which has been received in the Forest Service from A. M. Gottschall, head of the Times-Picayune's national advertising department.

The special American Forest Week Issue, which will be printed in forest green ink, will be devoted to the interests of the wood-using industries and to reforestation and forest conservation. Leaders in the wood industries of the South are planning to send special quantities of the paper over the country in addition to the Times-Picayune's Southern States circulation of 124,000.

In announcing this issue, Mr. Gottschall declares that "this will be the first time a large American newspaper has given such an impetus to Southern lumbering." He states that 85,000 tons of Southern Kraft paper were sold in 1924; 175,000 tons in 1926; and some mills are doubling capacity this year.

The Forest Experiment Station directors at New Orleans and at Asheville have been informed of the plan and asked to cooperate in furnishing forestry material for the edition.

JUST AS I AM - STETSON AND ALL!

By W. S. Williams, Lassen.

In nearly every issue of the Service Bulletin we find something about uniforms, un-uniforms, or the regalia that should go with them.

The article about sewing a pine tree on the uniform reminds me of the story of a Park Service employee who while traveling on a train was asked if he was soliciting membership in the Acorn Club. The stranger got the impression from the emblem on his coat sleeve.

Did it ever occur to some of those who are continually being embarrassed by some one's saying, "Home, James," or, "Here is a dime - deliver this note," that the same bus drivers and messenger boys might sometimes be embarrassed by being asked for "camp fire permits."

I have worn a uniform for more than ten years and I come in contact with the public about as much as the average Forest officer, but have yet to be taken for anything but what I am. I am not saying that it has not been done in many cases, but as all "well-bred" Forest officers are broadminded, polite and diplomatic, that should not bother us. Besides it should give you an opening wedge to help you sell yourself to strangers.

To my mind, the distinguishing characteristics of a Forest officer is the combination of the present uniform and the broad brimmed Stetson.

MR. EVANS APPOINTED CLARKE-MCNARY INSPECTOR

Charlie Evans has been appointed Clarke-McNary inspector in charge of the Gulf States District, comprised of Florida, Alabama, Mississippi, Louisiana, Texas, Oklahoma, and Missouri, with headquarters at New Orleans, The work will have to do primarily with cooperation under the first four sections of the Clarke-NcNary law, and with other regular activities of the Branch of Public Relations.

Mr. Evans leaves March 16 and will go first to New Orleans, then to Jacksonville, Florida, for a meeting of the Southern Forestry Congress March 22, then to Washington for a short detail and then back to New Orleans, Mrs. Evans and the children will stay in Ogden until school is out.

Charlie has been in the District 15 years and we are reluctant to see him leave, but nevertheless, congratulate him most heartily on his advancement. -- District 4.

EFFECT OF CEANOTHUS BRUSH ON WESTERN YELLOW PINE PLANTATIONS IN DISTRICT 1

By W. G. Wahlenberg,
Northern Rocky Mt. Exp. Sta.

Eighteen hundred 1-2 western yellow pines were planted in April 1926 on an east slope having a typical covering of Ceanothus velutinus bushes. Selecting 600 Ceanothus bushes well scattered over the mountain side, three trees were planted on the slope just below each bush. One was placed well under where it received much shade and root competition; one was placed well out where it received no root competition from bushes and only a very little, if any, shade; and the third was set in an intermediate position where it received some shade and doubtful root competition. The intermediate tree was planted under the outer edge of the crown of each bush.

Instrumental study on this area showed that from June to September 1926 the evaporating power of the air under brush was less than half that of adjacent open spaces. On calm, clear days relative humidity was greater under the bushes than in the open.

An examination of all the trees on August 20 showed a survival of 53 per cent in the open 68 per cent at the intermediate position, and 89 per cent under the brush. Rains soon prevented further losses from drought and it was obvious that the Ceanothus had helped the yellow pine through its first hard season.

Experience so far indicates Ceanothus as a desirable nurse plant for western yellow pine. Accordingly in the northern Rocky Mountain region it appears that planted trees should be set as closely under the bushes as is practicable without seriously decreasing the quality of planting.

WHO'S NEXT?

About a year ago Messrs. Zon and Hoar arranged through a chain of motion picture houses in Duluth, Minn., for the showing of Forest Service films. At Mr. Hoar's request the manager has submitted the following report:

"Lyceum Theatre		5000	per	week	for	52	weeks	-	260,000
Doric	"	1000	"	"	"	"	"		52,000
Strand	"	2000	"	"	"	"	"		104,000
Star	"	600	"	"	"	"	"		31,200
Sunbeam	"	1000	"	"	"	"	'		52,000
Orpheum-Proctor Theatre		500	"	"	"	"	"		26,000
									525,200

The above estimate appears low, but I am figuring conservatively rather than exaggerating."

FURROW MARKS

By W. G. Weigle, Snoqualmie

An interesting feature of the intervening space between the old and the newer fort is the dense growth of fir timber, averaging nearly two feet in diameter and in some cases fully three, and over a hundred feet high on what was prairie when the early fort builders began work. The land upon which this timber is growing still shows unmistakable signs of the furrow marks that can be traced through the forest. Verily, this is a most wonderful country, where forest products will grow, if properly protected, more rapidly than the hand of man will destroy."

The above is from the book "Pioneer Reminiscences of Puget Sound", by Ezra Meeker, which was published in 1905. He was then writing of his first visit to the forts at Nisqually in 1853. The forts were located near the Sound, approximately midway between what are now the cities of Olympia and Tacoma. The original fort was built in 1833 and the "newer" fort in 1836. Ezra Meeker, to all appearances as hale and hearty as ever, is now nearly ninety-seven years of age and may be seen today on the streets of Seattle in an old prairie schooner, sponsoring the sale of the Old Oregon Trail Momorial Half Dollars. His observations of over twenty years ago on timber growth are interesting. He should have been a timber farmer or forester. It will be given to but exceedingly few of us, if any, to see a "rotation" of timber as he has seen it.

From personal acquaintance with several of the old pioneers, I learned that the country between the Nisqually and Puyallup rivers, in the mid-nineteenth century, was more or less a vast prairie on which thousands of sheep and cattle were grazed where today are stands of timber interspersed with prairie, some of which has been logged.

STONE PICK HANDLE

We are sending in, states Robert Murno of the Coconino, a section of a stone pick handle, from the salt mine near Camp Verde, Arizona. We shall be glad to know of what kind of wood the handle is made. In this mine prehistoric tunnels have been unearthed which show that the Indians and prehistoric people secured their salt supply here. A number of interesting relics have been unearthed, comprising stone picks, handles, fibre torches, mats, sandals, etc. The handle sent in came from one of the old tunnels. All the relics found are in an excellent state of preservation. - District 3.

AND THE BLIND GODDESS SMILED

"I called on the Supervisor of the Kaibab National Forest. --- As I recall it now, I beat him to the draw and stopped firing only when both of my guns - or was it all four? - were empty. I rolled the body under a desk and walked out."

The above is from the pen of a fiction writer. - District 4.

LOOKOUT TOWER

Sometime ago, in a review of Thompson Seton's "Lives of Game Animals," mention was made of the playfulness of the cougar. Now comes Paul Fair,of D-5, with a good yarn on this little-known characteristic of the big cat:

"A very interesting instance of this came to my notice not long ago and I thought you might use it.

"Burnett Sanford, now forester for the Sugar Pine Lumber Company, and another man whose name I have forgotten were working several years ago on a timber sale on the Shasta and living with an old mountaineer in his cabin near the sale area.

"One morning in going to their work they noticed the fresh tracks of a cougar in the dust of the road. Coming around a bend in the road they met the lion walking leisurely along. Neither man carried a gun and as the lion stopped, seemingly not alarmed by their appearance, they picked up some rocks and began to throw them at the beast. Much to their surprise this procedure aroused neither fear nor anger, but seemed to awaken a spirit of play. When a rock whizzed by, the lion, instead of dodging, would strike out at it with a spread forepaw, just as a domestic cat will with a ball tossed to it.

"This happened several times until the boys managed to register a direct hit, when with a bound, the big cat went over a bank beside the road and into the brush.

"The old man with whom the boys were staying had a 22 rifle and an old hound which at some time in its career had lost a leg in a bear trap, so when the lion disappeared they went back for these reinforcements. There were only two .22 short cartridges for the rifle, so the boys cut some stout clubs and hurrying back, put the hound on the trail where the lion had left the road. The dog gave tongue and soon treed the lion. The first of the two precious bullets glazed on the sternum and the lion jumped, only to be treed again after a short run, when a more carefully placed shot found its heart. Sanford has the skin of the beast.

"The playfullness displayed by this fully grown cougar was certainly very unusual and something I have never seen in any writings about the animal." -W. S.

A CATTLE SLUMP

President Pyeatt of the D. & R.G W., in checking over the cattle shipments over his lines became very much concerned recently in the showing of reduced business and began to ask questions among his organization on ways and means of rehabilitating the live stock industry, especially the cattle industry.

Representatives of the system have been gathering data to show the trends, and a meeting has been called by the Chairman of the Agricultural Livestock Development Committee of the Denver Chamber of Commerce to discuss the question. Questions that are being asked are,

1. Now that the upturn seems to have begun, how should it be encouraged and directed

2. What steps shall be taken toward restocking the range. We have been invited to attend the conference and as the subject relates to the National Forests, we expect to show that the great part of the reduction in cattle has been absorbed by increases in sheep. There seems to be a general impression that large areas of National Forest land are being unutilized because of the reduction in cattle as shown by railroad shipments.

Service Bulletin

U.S. FOREST SERVICE

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THE MT. HOOD CABLEWAY

Colonel Greeley has written to District Forester Granger as follows concerning the proposed cableway on Mt. Hood:

"I appreciate the reasons which have prompted a good many people and organizations in Oregon to endorse this project. There are substantial arguments in its favor as a recreational development that would serve many people and increase the tourist business.

"On the other hand, I must confess a strong personal hesitation to approve the permit requested. This is partly due to the same sentimental regard for the sacredness of Mt. Hood which has been expressed by a number of people in Oregon. It is not a question of how conspicuous or inconspicuous the projected cableway would be, or just what types of refreshment houses and other buildings for the accommodation of tourists would accompany it. It goes rather to the deep-seated regard or reverence that I believe we should preserve for mountain peaks having the grandeur and commanding position, both geographically and historically, of Mt. Hood. It is impossible to deal with these spiritual or esthetic qualities of great natural features in tangible terms. Nevertheless, peaks like Hood, Shasta, and Whitney, preserved and revered as nature made them, do represent one of our greatest assets. And I can not but believe that the esthetic, or sentimental, value of such outstanding natural features would be impaired through subjecting them to this type of development. You can not measure this loss in any specific terms. Nevertheless some loss there would be; and in my judgment the material gains in tourist traffic, even the opportunity afforded more people to visit such points, are not sufficient to compensate for it.

"It may be desirable to construct cableways to some of our western peaks where commanding views are afforded. I would not necessarily preclude it in all instances. But I believe that the points selected for such projects should not be those having an outstanding distinction and hold upon public sentiment like Mt. Hood.

"Another reason which underlies my conviction in this matter is the general need of preserving a substantial portion of the more beautiful and scenic areas in the National Forests in as nearly a natural condition as practicable. We are in a period of rapid road building and extension of motor traffic all over the western States. We are more or less in a state of mind that conceives of the recreational values of any attractive region in terms of volume of traffic and speed of access. The gasoline motor has gotten possession of our souls. It is my own conviction that this aggressive conquest of the western wilderness may go too far. I believe that it is time to bring positively into our conceptions on this whole question the social need for keeping some of our mountains and forests "undeveloped". I think we must consciously set up in our plans for the use of the National Forests the very important social service rendered by retaining substantial areas available exclusively for unmotorized and nonmechanical forms of recreation. This is necessary in order that the people may continue to obtain from these regions the same sort of vigorous recuperation and spiritual stimulus that they have afforded in the past. Hence I believe that the public agencies responsible for the administration of these lands should be conservative in permitting the unrestrained opening up of isolated country where practical considerations do not compel it. Of course each case must be considered on its own merits and no general rule can be laid down. But as a general policy or conception, I am for moving slowly or holding back in road building and like forms of development in areas where recreation is the prime motive and outstanding natural qualities for wilderness forms of enjoyment are involved.

"For these reasons, I can not justify to myself an authorization of the Mt. Hood cableway at the present time. It is assuming a good deal of responsibility for any one man to undertake to settle a question of this nature which involves primarily the manner in which the public shall use resources which the public owns. I am not attempting to settle it finally, but I do believe that we should go slowly. I believe that the public attitude on these questions may change materially in the next five or ten years, with a fuller realization of the value of preserving some of our grandest mountains and most attractive wilderness areas from mechanical modes of access. At any rate, I can not at the present time, in the light of my best judgment and conviction on this matter in all of its bearings, approve the projected cableway on Mt. Hood."

Sign observed in restaurant in Newport, Washington, home grounds of the Kaniksu: "If your wife can't cook, eat here and keep her for a pet."

MOVIE LOGGING

A few years ago a company of ostensible stars got permission from the manager of a lumbering operation near where we were situated (which we will refer to hereafter as The Haywire Lumber Company, just to be cute) to use their plant and camps as a background for a picture scenario.

The lumberjack hero had ideas of his own as to how a woodsman should dress. In the story he was a young man from the East who had moved to the western forests to make an honest living, if possible. In the very first reel he appeared as a camp foreman. He took up a strategic position on a stump directly in front of the camera, from which vantage point, with many dramatic gestures, he high-balled the puncher to let the strain out of the mainline, dictated the policy of the company regarding the way a choker should be set and outlined his views as to the proper manner of falling a tree. Our dashing young hero also entertained some peculiar fancies regarding woods clothing. He affected one of those flat, wide-brimmed felt hats, such as the college boys throw into the air at a football game, so popular with lumberjacks,. but the thing we remember the clearest about him is the tie he wore. Aside from the fact that during our meager experience in the woods we have never seen a lumberjack with a necktie on, the idea was probably first rate, but what impressed it particularly on our memory was the tie itself. Another eccentricity of our young logging superintendent was his insistence on wearing a pair of English riding pants. We don't ever recall seeing a pair of these in the woods before. It's a French conceit we believe.

Some radical ideas on timber falling were broached by the young man, too. All the pine fallers we have seen are in the habit of giving a tree a casual glance, putting in an undercut with a few well directed strokes of an ax, grasping a cross-cut saw and dropping the tree within three inches of where they wanted it to go without thinking anything about it. To do it right, however, one must walk around the tree at least three times, meanehile going through a lot of motions with the arms and shoulders, squinting at the sun, pacing off distances, estimating windage, and breathing deeply and passionately to show the intense nervous presure under which one is working. After going through all these preliminaries the two young fallers attacked the tree with an ax, which is against our best judgment after watching several hundred fallers do their stuff. We removed ourselves from the scene after making three different bets with the manager of the Haywire Lumber Company as to which way the tree would eventually fall. It turned out that we lost them all. We haven't learned yet why the idea of using a cross-cut saw didn't occur to the young men, but they doubtless had a reason for not bringing one into the picture.

Our hero wiped his brow with a standard model red bandana hanky, breathed passionately fifteen or twenty times, and tried to look as if he had been committing such acts of vandalism all his life and was proud of it.

More than a year afterward a Government scaler ran across the stump the actors had left and broke down and cried, and there was some talk by the timber fallers, in whose strip the tree originally stood, of a suit against the movie outfit for defamation of character. - Extracts from article in California Lumber Merchant, November 15, 1926

ARTIFICIAL RANGE SEEDING

By Will C. Barnes, Washington.

I note in the Service Bulletin of February 28 the statement that ten lbs of alfilaria seed had been secured for experimental planting on the Datil, which brings to mind some experiments of my own many years ago on areas along the northern edge of the present Sitgreaves Forest.

Impressed with the wonderful character of this plant for early spring forage I secured 100 lbs. of seed from California. It cost us $1 a pound. We sowed it broadcast from horseback on the Cedar-Yellow Pine area of the Sitgreaves during a very favorable period of weather. In order to make sure of our work we marked a number of places where the seed was sown so that we could watch its development. Perhaps we were the originators of sample grazing plots for observation purposes in that section of the country.

After a year or two we found evidences that the seed had taken hold, many of the plants being found under the shelter of low bushes and spreading cedars. None of it however attained any height, the growth being very short and close to the ground. I doubt if cattle could feed on it at all. None of it spread to any great extent although watched for several years.

Observations of this point in various parts of the West have convinced me that it grows in rather limited soils. The most satisfactory seems to be a decomposed granite or gravelly soil. I do not believe it will thrive to any extent at all in light sandy or adobe soils. I have seen it on vacant city lots at Las Vegas, New Mexico, brought as near as I could learn by sheep shipped into the ranges around there from California, also along the railroad tracks in the Palouse Valley in eastern Washington, planted by similar methods.

In none of these cases, however, has the plant grown to any size. It formed a comparatively thick sod but growing always close to the ground, certainly not over an inch high.

It will be interesting to note the results of the seed planting on the Datil, and I hope the boys will mark some spots where the seed is sown so that they can make observations as to the success of the planting year after year.

CROOKED HANDLES

Concerning crooked handles, Forest Ranger George W. Walkup of the Ashley has the following to offer:

"Put turpentine on handles where the crook comes and let wood take in all the turpentine it will soak up, then hold the handle over an open blaze and let the turpentine burn off. If necessary repeat this two or three times in order to get the wood warmed up well and drive the turpentine in. Then put the handle in a vise and pull it straight or crook it just a little in the opposite way and hold until the wood cools. It is very seldom that the handle will ever crook again.

"For the past ten years I have used this method for straightening all kinds of crooked handles." - District 4.

CUT OUT THE BLAZE - SAY IT WITH FLOWERS

By Wilfred White, D. 1.

It is a popular belief that there has been a lot of parlor talk about doing something for homeless cats and dogs. There is surely no harm in such discussion. No doubt, the participants have been benefited by a healthy arousing of the emotions and got a sort of spiritual kick out of it. But would it not have been a waste to have gone any farther than talk? There is too much mental and physical suffering among our own kind and lack of childhood opportunity to bother with cats.

Some of the earlier temperance talks on trail blazing seemed sane enough. More recently the Clan seems to be getting "het up" like the members of a negro revival and now and then an article reminds one somewhat of the emotional cat talk just described. Still, no harm has been done. Doubtless it is rather a good thing for the souls of a lot of us old hardshells to get sentimental about the wicked wantonness of wounding trees with blazes, provided nothing more than talk comes of it. There must be a lot more worth while things to do than enacting trail blazing prohibition laws and spending money and time buying and putting up enameled markers. What shall it profit a man to save a tree from the blaze and then lose it by fire?

Just visualize those enameled markers. What wonderful targets! The best argument for them would be that their general use would result in the improved marksmanship of our boys. I detest sign defacers, but I should never trust myself with a twenty-two on a trail with such splendid target markers.

Good trails need no markers; the tread is plain and the right of way cleared. For poor trails the blaze is good enough.

An ordinary blaze doesn't look so bad. Is there the least bit of evidence that a blaze affects growth unfavorably or that parasitic diseases enter through the pitch wound with any greater frequency than a baby is born with six toes?

SAVING TIMBER

By Peter Keplinger, D. 2.

The "Forest Worker" sometime ago published an article entitled "Saving Two Million Acres of Timber a Year". The argument is that the railroads through preservation of ties have reduced the number required by 125,000,000. The conclusion is that this saving automatically saves the number of acres of timber required to produce the ties. But does this follow? If timber were mined liked coal, it would; but timber is a crop. Colorado could produce 25 million of those ties from non-productive land, non-productive because of no market. Other non-producing areas could easily supply the other 100 million.

The fallacy comes from a wrong point of view. It seems that we will never get over the habit of looking upon a forest as a mine. And when will we learn to recognize that the non-producing forest, the forest where no crops are harvested, is just as much "waste land" as the barren sand plains of Michigan? The railroads may have saved dollars in fewer replacements but they have not saved acres of timber.

Take another example: Do the facts prove that the much heralded "timber famine" really will get here some day or do they prove that if we ever do market the products of our forests (that is practice forestry) we must do so in competition with the forests of France, of Finland, of Scandinavia, of

Siberia and of Canada. The "timber shortage" has been a perfect alibi for inaction in the past but can we get away with it in the future?

Unfortunately we have told the people that a forest should produce a wood CROP. Why did we not think that sometime they may turn upon us and ask us why so many of them do not?

RATING INSURANCE RISKS BY MERIT

By Thornton T. Munger,
Pacific Northwest For. Exp. Sta.

A tremendous stimulus to fire prevention in logging operations in the Pacific Northwest is the system of rating and inspecting risks recently put into effect by the Logging Insurance Underwriters Association. This is a pool of 73 leading fire insurance companies which has been writing policies on logging equipment and felled timber in the West the past year. Many logging companies have taken advantage of this insurance service and the plan is to be continued in 1927, however with several radical changes which experience shows necessary, since the loss ratio in 1926 was 130 per cent.

The risks are now rated according to merit. There are four classes of risks with separate rates within each for felled timber, donkey engines, cable, etc. An experienced logger and fire warden makes a survey of each operation that applies for insurance and rates the risk, and the insured is classed accordingly. Those operators who take precautions against fire are credited by getting a higher rating and cheaper insurance, while the careless operator either is unable to get insurance or pays dearly for it.

The logging operation survey rating sheet covers such factors as these (and many more):

Topography
Climatic Conditions
Logging units not well scattered
Swing donkey used during fire season
Logs cold decked during dry season
Length of logs
Watchman service
Patrolamn
Spark arresters, ashpans
Non-smoking regulations
Snags - whether felled or not
Clearing around camps, bridges and donkeys
Fire-fighting facilities - tank car, pumps, hose, telephone system
Camp fire warden
Exposure to other operations, farms, tourists, fishermen, highways, etc.
Dry season operations - early shift only, shut down or not
Humidity instruments and records

It is a scientific way of getting at the fire danger that exists on any operation. With a most capable field man the Insurance Association is able to tell operators how they may better protect their operation against fire and so qualify for cheaper insurance, or have their policies cancelled, if they persist in carelessness. This is bound to spread a knowledge of the best fire protection methods among operators and whet their precautionary efforts. It is a better whip than volumes of fire laws.

This year the Association is prepared to include in policies in the Douglas fir region a "Humidity Warranty" which provides "that all logging operations will be completely suspended for any period in the months of April to October inclusive during which the relative humidity is below thirty (30) per cent." Instruments to measure the humidity must be kept on the premises. "A breach of this warranty renders the policy null and void during such breach".

Surely science and the fruits of systematic observation - research - are more and more winning a place in the protection of forests and the timber industry from fire.

WASHINGTON VISITOR

Mr. C. F. Evans, recently appointed district forest inspector having charge of the Clarke-McNary law in the Gulf States, paid us a short visit before going to Jacksonville, Florida, to attend the Southern Forestry Congress. After this meeting Mr. Evans will return to Washington for a short detail during which he will get in touch with the work in general before taking up his permanent headquarters at New Orleans.

FOREST FIRES AND WILD LIFE

By E. N. Munns, Washington.

A recent book on "The Conservation of the Wild Life of Canada," by C. G. Hewitt, brings out some relations between forest fire and wild life which should be of interest to nearly all foresters. In one place Mr. Hewitt states:

"In Canada forest fires constitute one of the most serious dangers to animal life. Not only do such conflagations destroy large numbers of mammals and birds, particularly young ones, but they destroy the haunts of such animals, and in consequence any replenishing or restocking of the devastated area is impeded for some time, and in any case the conditions are never as suitable or as attractive."

In another place the statement is made:

"One of the chief factors that have been responsible for the disappearance or reduction in numbers of moose in many parts of the Northwest Territories has been the destruction of their former haunts by extensive forest fires, which, as I have repeatedly pointed out, constitute one of the chief means of destroying the haunts of big game and fur-bearing animals."

In discussing the marten the author also states that he is inclined to believe that the great destruction of forests by fires and other causes, which has undoubtedly occurred since 1875, has been chiefly responsible for a noticeable change in the fluctuations in population of the marten.

In view of some discussions in the Service meeting lately regarding the introduction of elk into grazing areas in the Southwest, the author's statements as to the habits of the elk are of decided interest. It is stated that the elk lives in a rough, wooded country which is not well adapted to cattle grazing.

A TRUE STORY FROM THE HELENA IN PROSE

By A. H. Abbott, Helena.

Calculations of yield many years hence is frequently indulged in, is interesting, and is as a rule the best that one can do, But there is always at least a slight resemblance to the theoretic counting of chickens before they are hatched.

The National Forest cuttings are too new to give actual yields of periodic cuttings. So any little bit of history covering the amount of cuttings for quite a few years is usually interesting to foresters.

Forest officers on the Helena National Forest have gathered the following information for four hundred acres of lodgepole pine land, 12 miles east of Townsend, Montana. While the site is better than the average, it is no better than an average good site:

Cut prior to October 3, 1905 and since 1885	Amount Ft.B.M.	Value $
Saw timber; estimated by logger who cut timber ----------------	540,000	810.00
House logs, poles, posts, cordwood, etc; estimated by Forest officer --------------	200,000	200,00
Cut since the creation of Forest, October 3, 1905,		
Actual sales ---------	1,128,000	1,752.86
Free use, including administrative use (Forest development roads) to county ------------	330,000	480.00
Total cut -----------	2,198,000	3,242.85

A cut of 5,495 ft. B. M. an acre, worth $8.05 an acre, over a period of 40 years, or 20 cents an acre a year.

During this 40-year period the area has carried about 25 head of cattle for four months each summer season At 50 cents a head, the forage value for the last 40 years would be $500, or 3 cents an acre a year.

Besides this gross return of 23 cents an acre for the last 40 years, there is a thrifty young stand upon the area. Including everything merchantable, small saw logs, posts, poles, and cordwood there is estimated to be 350,000 feet B. M. now upon the area. Two crops of saw timber have been harvested since 1885, and a third cutting will be ready 40 years hence. When next cutting is made, there will be a stand of poles 60 to 80 years old, to take the place of the stand removed.

The forest cover for watershed protection is being maintained.

Most of this data was obtained by Ranger Earl V. Welton.

THAT MT. HOOD CABLEWAY

I hope you have read Colonel Greeley's letter to District Forester Granger in this issue.

Wouldn't it be like putting a wreath of peanut shells on the brow of the Olympian Jove? One of our wags has put it thus - "I am glad to see Colonel Greeley so stoutly defending Mt. Hood against the advancing wave of hot dogs." - Ed.

ANOTHER WAY TO START A FIRE

By R. A. Elliott, Santiam

We believe we have a new one in a fire that occurred near Berry two or three miles west of Detroit, on the Santiam Forest. This fire was started by the explosion of a railroad torpedo placed on the track, presumably as a protection to the section men working nearby. The section men jumped on the fire as soon as it was seen but were unable to hold it. On notification our railroad speeder broke all speed records to the scene of the fire, and in twenty minutes from the time notified had the Evinrude pumper in action putting water on the fire. It took the li'l ol' Evinrude only about 15 minutes to put out the fire and mop up.

LANDS WORK CHANGING

By M. M. Cheney, D. 3

The earlier activities of Lands in settlement, classification, and claims are almost a thing of the past. Ten years ago, District 3 listed as many as 100 homesteads in a single month. In 1924, the number for the entire year was 27; in 1925 it was reduced to 12; and for last year, the District only listed 3 tracts, one each on the Coconino, Manzano, and Sitgreaves, as against 11 recalls.

In claims work there is still several year's work to clean up the homesteads already listed, but it is a reducing number. In 1926 the District handled only 95 claims cases as against an average of 300 a few years ago. The Datil did not have a single claims case, while the Coconino had the highest number with 13. The Crook has only one unpatented homestead on the entire Forest at the present time, while the Coconino has the most claims work ahead with 100, the Carson being in second place with 96 and the Lincoln in third place with 50. There are 505 claims cases in the district as against 780 in 1914.

WOULD YOU CALL IT A WILDERNESS?

Lying north of the Artic Circle and Yukon River, west of the Canada-Alaska boundary, and east of the known mining camps on Chandalar River is a large tract of unsurveyed country about which little is known.

In this wilderness a party of the Interior Department's Geological Survey is preparing to make both geological and topographic surveys during the coming field season. In order to utilize most effectively the short open season the topographer of the party, Gerald Fitzgerald, sailed from Seattle February 26 for Seward and thence over the Alaska Railroad to Fairbanks, where he will purchase a dog team and go by trail to Fort Yukon.

At Fort Yukon he will outfit with all the necessary supplies and equipment needed by a party of four men, as there will be no other chance to purchase them until the party returns to the Yukon in September. From Fort Yukon the outfit will be freighted to the East Fork of the Chandalar, where connection with earlier surveys to the west will be made. During April and May most of the time will be spent in preliminary scouting through the area to be surveyed and in placing caches of supplies at convenient places where they may be available during the summer. - From Dept. of the Interior News Release.

FOOD FOR THOUGHT

From an article on "Lost Trails" in the District 1 Bulletin we quote the following:

"I can cite dozens of instances of perfectly good passable trails on the Forests in this District which have been left to fill up with logs and brush. Some of these trails have been built by miners, trappers, lumber companies, or surveyors. Some have even been built by the Forest Service to fire camps or for timber-survey purposes, and later forgotten. Many of these trails are not even shown on any Forest maps. If the Ranger is long in the district he may know of their existence. If he is a new man in the district he probably does not know there are any such trails.

Since we now propose to build a lot more trails for emergency purposes, and not for regular travel, why not first adopt a few hundred miles of these lost trails? Any trail is useful for fire protection purposes. It is usually a lot cheaper to clean out an old trail than to build a new one. Let's get all these old trails on the map and then make up a real honest-to-goodness maintenance plan that will insure every trail coming up for maintenance regularly, most of them yearly, none of them less than biennially. This is one of the jobs that will take a lot of real inspection on the ground to see that the work is done.

U. S. A. VS. BIG HORN LAND & CATTLE CO.

In the case of the United States of America vs. The Big Horn Land & Cattle Company, decision of which was filed January 17, 1927, involving an easement for reservoir purposes under the act of March 3, 1891, the court held that under the Act a limited fee in the easement was secured but not a limited fee in the land itself and that the Act did not confer such possessory rights in the land as to entitle the grantee to the exclusive control of the reservoir for fishing purposes. - District 2.

THE HORSE IS STILL WITH US

"The automobile is crowding out the horse as a medium of transportation on the National Forests" says Paul G. Redington, according to a forest school news letter. District 3 still has more than a sentimental attachment for the horse, at the same time recognizing, on most ranger districts, the value of properly directed car-use. As an indication that some trusty steeds have been relegated to the discard or placed on half rations, allotments for forage decreased a little over 25% from 1923 to 1927. The Tusayan throws some light on the subject. The Rangers on that forest spent an average of 213 days in the field, of which 107 were horseback days. - District 3.

Service Bulletin

U.S. FOREST SERVICE
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THE WHY OF THE WEEK

By C. M. Granger, D. 6.

American Forest Week activities are not for the benefit of the Forest Service. They are for the benefit of the American public as a whole, and their chief value is in their bearing on local economic problems. The whole movement focuses on the importance of keeping forest lands productive. The local people, through the collection of taxes on forest lands, through pay rolls, through the upbuilding and maintenance of communities, through local watershed protection and recreational use, and through a great many concurrent uses, are the ones who will profit first and most by the extent to which that aim is realized. The general public profits next, and the federal and state protective agencies perhaps least of all. This is the compelling reason why we should work toward having local communities take over and carry on American Forest Week activities. Furthermore, to the extent that local people do this and take an interest in it will we actually be able to make and measure progress toward the underlying aim of the movement. Let us do our best, therefore, to get local communities, individuals, and committees of individuals to take over the planning and the performance. It is always true that people get out of things just what they put into them, and no more. Every time an individual member of a community or a group in a community takes the responsibility for forwarding a public movement, just so much more definite ground is gained.

Toward the plan of transferring the bulk of American Forest Week activities to the local people, every Forest officer can and should do his part. Also, to the extent that the Forest Service can and should be represented itself in the work, it is a job for all of us and not just a few of us. To the extent that the efforts represent every person in our organization rather than the work of a relatively few of us will our American Forest Week job be successful. This doesn't mean that every man has got to go out and make a talk. There are a thousand other ways of promoting the movement.

A good many old-timers and a good many of the present day grown-ups are perhaps hard to reach with the American Forest Week message, or with the conservation message in general. Not so with the children. For the double purpose of training the growing minds toward the right attitude on conservation and for using the very powerful influence of children to interest their parents and other grown-ups, let us give particular attention to the young people in the schools and in their organizations such as the Boy and Girl Scouts, and so on.

We don't want our American Forest Week activities to assume the proportions of an unjustified burden on ourselves or others. We don't want forestry and forest protection to be loudly acclaimed during one week and lie unheralded the rest of the fifty-two. But after observing those limitations and precepts, experience teaches us that it is a tremendously valuable medium for promoting the permanent productivity of forest lands. You men in the field will know how to make it most useful without over-stressing.

IF THIS BE TREASON---

By L. F. Hawley, Forest Products Laboratory

In the December 13 Service Bulletin Mr. Munns takes credit to himself for the appointment of two non-forester scientists on experiment station staffs. Such appointments are worthy of commendation but they are nothing radical in Forest Service policy. We have had for a long time grazing men, pathologists, engineers, and chemists in the Forest Service and many of them have been doing research work. Of course, it may be said that the pathologists are not actually in the Service and that pathologists who are not foresters are doing the pathological research of the Forest Service only because of the very close and active cooperation of the Bureau of Plant Industry. It may also be said that the grazing men are in the Service only because our National Forests happened to contain grazing lands and that we would prefer the forests without the sheep and cattle, and the Service without the grazing men. The engineers and chemists who are doing research work are largely in products work and this is not really forestry and so (it might be argued) the appointment of ecologists at forest experiment stations is a radical and notable action.

I would be willing to admit all this and to give Munns even more credit than he claims had I not noted one little phrase which takes away all the virtue from his action; "Recognizing the immediate need and AS A TEMPORARY EXPEDIENT UNTIL SIMILARLY WELL-TRAINED FORESTERS ARE THEMSELVES AVAILABLE, the Service has deviated from its policy of engaging trained foresters for silvical investigations and has recently appointed two forest ecologists." It seems to be orthodox to have in the Service research work, men who have specialized in botany, engineering, chemistry, physics, and ecology but ONLY IF THEIR TRAINING HAS BEEN PRIMARILY IN FORESTRY. Right here is where I begin to disagree with Mr. Munns and, as I also realize, with the S.A.F. Committee on Education.

I believe that if we once admit the desirability for specialization in training for research work, we should not continue to insist on the exactly opposite policy of requiring a forestry training for each specialist when it seems obvious that this requirement must decrease the amount of specialized knowledge. The degree of specialization should be governed only by the kind of problem on which the man is to work. As our research problems become more complicated and fundamental, more and more specialization and less and less forestry will be required of the individual investigator.

It has always been considered that the great advantage of a research organization in comparison with scattered individual workers, was that the former could be made up of specialists in different lines and that the work of each specialist would be strengthened by the cooperation of the other specialists. If we admit this, why should not an ideal research organization for a forest experiment station consist of a botanist, a pathologist, an entomologist, a meteorologist, and one or more foresters? Why should not the necessary forestry elements be furnished by a specialist forester in cooperation rather than requiring this sort of training in each individual specialist?

There are only two reasons commonly advanced for requiring a forestry training for each research specialist in the Forest Service. (1) he should have a forestry viewpoint so that his work may be directed toward a forestry problem rather than toward some problem of more interest to his special science; (2) he should have all possible information about the growth and structure of his raw material (if in products work) or about actual forest conditions (if in experiment station work). These may seem like sound and important reasons but after a little consideration they are found to be trivial. No.1 is not a function of the individual researcher at all but of the director of research or other administrative officer and should have no necessary bearing on the training of the individual. No. 2 is unimportant at least for a non-forester in products work. A chemist or engineer can learn more about the formation and structure of wood by a few hours discussion with some good specialists in these subjects than he would normally learn in a four years' forestry course. If you don't believe that statement without any more embellishment, we will not argue further on that subject. Instead, we will ask you this hypothetical question. "If you were planning to hire a man for research work on coal-tar dyes would you decide that his primary training should be related to the methods of obtaining the raw material, coal, and therefore select a mining engineer, or would you carry your logic to an extreme by insisting that he know all about the origin and formation of the raw material and that he must, therefore, be primarily a geologist?" I cannot be so specific about the outsider entomologist or pathologist at the forest experiment station but I believe the same arguments and analogy hold as in the case of the outsider chemist or engineer at the Forest Products Laboratory.

It might be thought that the reason I feel so strongly on this subject is that I am a non-forester chemist and have taken as a personal affront the intimation that a forester-chemist would CETERIS PARIBUS have done better work. This is not the reason, however-the CETERIS PARIBUS saves me there. It is simply the old question of "How special do you want the specialist?" I am not trying to support the notion that narrowness in a specialist is always desirable. Broadness he must have in viewpoint, but there is so much to learn that narrowness in training is necessary in order to make a man worthy of the title of specialist.

FOREST FIRE PREVENTION LECTURER - $2,000.

The United States Civil Service Commission announces a competitive examination under the above title. Applications must be on file with the Commission at Washington, D. C., on or before April 16, 1927. Vacancies in the Forest Service, for duty in the field, will be filled from this examination, unless it is found in the interest of the Service to fill any vacancy by reinstatement, transfer, or promotion.

SALARY AND PROMOTION. Entrance salary is $2,000 a year.

DUTIES. - Holding public meetings in school houses, churches, and other public places in country districts and delivering lectures on the value of the forest resources and the need for fire prevention; traveling in personally operated motor truck and filling at least 20 program engagements per month on prearranged itineraries under direction of Forest Supervisor; operating motion-picture equipments; preparing new educational material for use at public meetings, including the taking of photographs for educational work.

SUBJECTS AND WEIGHTS. - Competitors will be rated on the following subjects, which will have the relative weights indicated:

Subjects	Weights
1. Mental tests -------------------	50
2. Education and experience -------	50
Total	100

EDUCATION AND EXPERIENCE. - Applicants must show that they have had at least one year's experience in the operation of motion-picture equipment and the description of pictures so projected in public addresses. They must also show that they have had sufficient mechanical experience to operate and care for a motor truck, and attached electric power equipment. Additional credit will be given for experience in taking photographs.

THE "LOW DOWN" ON BRUSH DISPOSAL COSTS

By T. D. Woodbury, D. 5.

Thanks to Ranger Paul Kevin of the Stanislaus Forest we have, at last, some "real dope" on brush piling and brush burning costs This information has been furnished for two separate sales where we have been piling and burning brush for several years with our own gangs. A high class job of brush disposal has been secured.

On these two sales – the Punch Bowl and Herring Creek Logging Units – the logging was done by donkey engines and part of the limb wood was used for fuel.

The Punch Bowl Logging Unit is situated at an elevation of from 5700 to 7000 and may be classed as an average donkey logging area from the standpoint of surface and topography. The cut consisted of approximately the following percentages by species:

Red and white fir	40.8%
Sugar pine	30.5%
Yellow pine	23.7%
Cedar	5%

The timber is large and the stand heavy – about 30 M per acre. There was an unusual amount of manzanita and other heavy brush present on the area before logging.

An average of 24 men were employed in piling throughout the season by the Forest Service, including foreman. The brush burning was done after November 13 with a crew of from 7 to 29 men under a foreman and three Forest officers. A part of the burning was done in heavy rain and a part with 15 inches of snow on the piles. Cedar bark torches were used and each man carried a gallon of coal oil. A torch and gallon of oil lasted about one-half day. Ninety-nine per cent of the piles were burned on an area of about 1400 acres. (SEE TABLE)

The Herring Creek Logging Unit is situated directly south of the Punch Bowl at a slightly lower elevation and on somewhat better logging ground. The cut per acre was about 30 M. The sugar pine and white fir timber was larger than in the Punch Bowl area –– an exceptionally fine stand of sugar pine particularly with an average log content of 800 feet B.M. The cut was composed of 28.6% sugar pine, 43.1% yellow pine, 20.4% white fir and 7.9% incense cedar.

An average of 11.6 men were employed in brush disposal on this sale by the Forest Service during the season. The costs of piling are less than for the Punch Bowl sale. This may be partially accounted for by a high-

SUMMARY OF COSTS –– 1926

Punch Bowl Area

		Expenditures	Volume	No. Acres	Cost per M.	Cost per A.
PILING	Labor	21,724.95	40,270,000	1,386.8	.5395	15.665
	Tools	76.49	"	"	.0018	.055
	Total	21,801.44	"	"	.5413	15.720
BURNING	Labor	985.32	40,670,000	1,400	.0242	.7038
	Tools	59.34	"	"	.00146	.0424
	Total	1,044.66	"	"	.02566	.7462
Total		22,846.10	40,670.000	1,400	.56696	16.4662

er percentage of pine, easier ground, proximity to camp, less underbrush and more complete utilization of limb wood for fuel. The brush burning costs are higher than for the Punch Bowl area because the work was seriously interfered with by storms and wind.

SUMMARY OF COSTS -- 1926

Herring Creek Area

Div.	Sub-Div.	Expenditures	Vol. M.B.M.	No. Acres	Cost per A	Cost per M
PILING	Labor	9,149.67	21,570	715	12.796	.4242
	Tools	142.47	"	"	.199	.0066
	Total	9,292.14	"	"	12.995	.4308
BURNING	Labor	561.87	14,280	475	1.183	.0393
	Oil, etc.	80.81	"	"	.170	.0057
	Total	642.68	"	"	1.353	.0450
Total		9,934.82			14.348	.4758

It is a fair deduction from the above data that brush can be piled in heavy mixed coniferous stands on average donkey logging ground for from 43 - 54 cents per M and burned for from 2½ - 4½ cents per M, or a total cost for both piling and burning of from 45½ - 58½ cents per M. We actually did it for that ourselves on an 8 hour day basis, paying a wage of 50 to 53 cents per hour and handicapped by occasionally having to carry inefficient labor until the periodic pay-day.

We have all often heard it contended by lumbermen, and others, that the Government cannot handle jobs of this type as efficiently as private employers. But private operators often try to make us believe that work of this type is costing from 75 cents to $1.00 per M. Are they less efficient, are their cost records poorly kept, or are their cost figures prepared for Forest Service consumption only with the object of influencing appraisal allowances?

Because the large volume of work involved in preparing and because by giving this work proper supervision we can secure a satisfactory standard of work by operators, we have decided to discontinue handling the work ourselves on the Stanislaus Forest at the termination of the Herring Creek sale. Our experience has been of great value and has given us excellent data for application in timber appraisal work.

SECURING AND RETAINING PUBLIC FAVOR

Satisfactory public relations from the public utility point of view must be grounded upon two essentials: First, good service, and second, proper public contracts. The two are of equal importance and each is intimately bound up with the other. My own belief is that good service is impossible without proper public contacts, and that the reverse is also true--that having once made proper contact with the public, good service will follow, as the night follows the day. Good service means extraordinary service, not simply that lights come on when the switch is pushed. It means that the public receive intelligent, courteous and abundant cooperation from the organization furnishing it.--J. F. Owens, Vice-President and General Manager, Oklahoma Gas & Electric Company.

THE RANGER'S HORSE

A Forest officer who has never owned and enjoyed the companionship of a good saddle horse afar from the beaten track and honk of the automobile horn, who has not listened for and heard after a moment of suspense the tinkle of the bell down on the flats as he sits before the glow of the camp fire, and who has never proceeded about his work in the woods with his faithful steed at his heels, has missed much; how much it is not possible to weigh on a scale fabricated of words and punctuation marks. His loss has been of that bloodstirring something that makes a Forest officer a bit more of an out-of-door man, and a part and parcel more fitting of the scenes he strives to protect and administer. And few Rangers nowadays have the advantage of knowing the romance of saddles, hobbles, bells, spurs, the diamond hitch, and the grip of loyalty to the fastest walker, the longest winded, and the easiest gaited 1100-pounder that ever stepped the trail - and what Ranger's horse is not all of that and more. Besides, he is the best camp horse on the range. But that Ranger with his horse is a passing picture.

As it fades into the history of yesterday, now comes a man who would shear the forest of one more of its traditional figures - the blazed trail. Instead, he would tin-plate and paint them too.

Locoed Silas of the Holy Cross - crazy is he? No more than I, and I hope no less than you. He speaks the spirit of a passing race of woodsmen. A spirit untarnished by paint and tin on wheels or otherwise, and untouched by woods lore learned from reading highway signs or those on 9-foot roads from the wheel of Buicks, Fords, Chevrolets, or Stars. He voices the sentiment of the man whose heart lies out in the big open spaces of the tall and uncut. I wager he owns and loves the best horse on the Forest. If he does not, he dreams of him, even as I.

There is enough tin entering into the present life of the Forest Ranger without tin-plating our trails. As to paint, let's have something more natural.-Wandering Ike.

Note: When the Associate Forester OKed this issue of the Bulletin he observed that the writer's description of the ideal horse for a Forest Ranger, "the fastest walker, the longest winded, and the easiest gaited 1100-pounder that ever stepped the trail" -- was a true word picture of the horse he owned and rode as Supervisor of the Bitter Root National Forest in Montana over twenty years ago. A high-spirited brown horse that could carry you 60 miles between sunrise and sunset, yet strangely enough you could pull off his bridle, hang it on the pommel of his saddle, turn him loose, come back in half an hour and find him browsing around within 100 yards of where you left him. All you had to do was walk up to him, slip on the bridle, adjust the cinch, throw your leg over and be on your way. And his name was "Ranger". ED.

THE TWO LEGGED COW OF THE SIERRAS.

By C. W. McKenzie, Coronado.

The article entitled "Why The Old Cow Is Called Bossy" on page 7 of the Service Bulletin of January 3, 1927, brings to mind a peculiar experience of the past season while on a northern California Forest.

The hunting season has just opened and the woods were filled with hunters from every section of the State. Being on "under-cover" work and traveling under an assumed name, my conscience would not permit me to ask for a resident license and my pocketbook did not register the value of a non-resident license, so of necessity I was content to watch the other fellow have his fun.

Members of a hunting club camped close to my temporary quarters were using cow-bells as a decoy for deer and were reporting successful results. It might be well to state here, for the information of those who have never lived in the Golden State, that most California cows and SOME calves wear bells. The native deer mingle with range stock and are accustomed to bells, hence the value of jingling bells to detract from other noises caused by pedestrian hunters.

One morning I accepted the invitation of a belled hunter and tagged along to help carry in a buck which I felt sure he wouldn't get.

About 3 miles from camp he sent me into a chaparral thicket to do a little bell work while he watched the edges from a strategic point. About five minutes after the first gong was sounded I heard a loud voice calling from across the canyon "Soo- cow, soo-cow, s-o-o-k". This call was repeated several times. Directly I saw a man on horseback riding toward me and then it dawned on me that the old boy was after his milch cow. So I decided to have a little game with him. In the thick thorny brush I could move much faster on foot than he could on horse-back, so we went round and around, I ringing the bell whenever I felt safely concealed and he calling his "soo-cow" whenever the bell was quiet, until finally he came forth with a long string of words that wouldn't look good in print, and told what he thought was the old cow that if she ever raised another calf on that brushy mountain side she would sure as H--- be used to plug the cavity of a thirty-gallon barrel at the ranch the following year. With these farewell remarks the old man hitched his hat on a little tighter and with a click of spurs and a "gidap" he galloped down the slope without glancing back.

TWENTY-FIFTH BIRTHDAY FOR NEBRASKA FOREST

Arrangements are now being made to celebrate the twenty-fifth anniversary of the establishment of the Nebraska Forest and the Bessey Nursery. This celebration will be held early in June and it is hoped to secure the attendance of many men prominent in forestry who were connected with the early development of this project, as well as many others in educational and political life who have been interested in it.

A preliminary reconnaissance of the country now included in the Nebraska Forest was made in the summer of 1901, by a party under the general direction of William L. Hall. The party consisted of R. S. Kellogg, acting chief, L. C. Miller, now deceased, Hugh P. Baker, Professor F. G. Miller, Professor E. P. Bailey, John H. Hatton and Charles A. Scott. As a result, on April 16, 1902, by proclamation of President Roosevelt, two separate forests known as the Dismal River and Niobrara Reserves were created.

The boundary was surveyed in the summer of 1902 by another party of foresters, who have been prominently connected with forestry in the United States since that date. On July 13, a site having been selected for a nursery, ground was broken for the first seed beds. The nursery crew consisted of Charles A. Scott, who was also the first Supervisor of the Forest and is now living at Fort Pierce, Florida; William H. Mast, at present the proprietor of a large nursery at Davenport, Iowa; and J. C. Bloomer. Seed was collected in the pine ridge of northwestern Nebraska and in the Black Hills of South Dakota and the first seed beds were sowed in November 1902. Forty thousand yellow pine seedlings were pulled that same fall in the vicinity of Nemo, South Dakota. These were heeled in at the nursery over winter and were planted in the spring of 1903, together with 70,000 forest pulled jack pine seedlings from the Minnesota Forest.

Considerable interest has already been aroused in this proposed celebration among men who have been connected with the project at some time or other, and it is hoped to have a large gathering of prominent foresters and other interested people at Halsey in June at the twenty-fifth anniversary of the starting of the first continuous planting project on the National Forests. - District 2.

RECREATION ON THE NATIONAL FORESTS

By M. M. Cheney.

A total of 904,793 people visited the forests of the Southwest, including New Mexico and Arizona, during the past year. These figures are based on registration count by field Forest Officers and estimates of resort keepers and other persons having opportunity to secure this kind of data. There is a 50 per cent increase during the year, but practically all of it has occurred in Arizona. - District 3.

THE DOLLARS AND CENTS OF A SAMPLE PLOT ON THE PAYETTE

By Clark Miles, Payette.

Had this plot been clear cut at the time of first cutting, 55 years ago, the following would have resulted: The area would have yielded 9,720 board feet per acre. For the sake of comparison, using the present stumpage price of $3.56 per M. this would have yielded the sum of $34.60 per acre. (actually it probably did not yield ⅓ of this at the time of cutting on account of a much lower stumpage price at that time). If large areas in that vicinity had been clear cut, this plot would not have a single tree on it at this time, the only reproduction on the area being that which has come in during the past 55 years from seed trees which were left under the selection system of cutting.

Had selection cutting been made, the following would have resulted: The first cutting of 8,320 feet per acre would have yielded $29.62. At the end of 55 years there was a total stand of 16,964 per acre. Cutting 75 per cent of this under the selection system would give a cut of 12,724 feet per acre which would yield $45.30. This would give a total for the area of $74.92 as compared with a total of $34.60 by the clear cutting method. In addition to this we have a large value left on the ground. Twenty-five per cent of the total stand of 16,964 feet gives a stand of 4,216 feet in trees of merchantable size left for growth and seeding purposes. We also have a fair stand of reproduction which has come in within the past 55 years from the trees left after the first cutting.

From the above it is seen that the total receipts under clear cutting on this area amounted to $34.60 per acre. At the end of 55 years it is still necessary to plant to obtain a stand. Under selection cutting the total receipts in this period of years is $74.92. Also at the end of the period there is a good stand on the ground as the basis for future cuttings. The sum of $5.00 per acre left on the area after the first cutting 55 years ago has yielded, exclusive of protection, taxes and other carring costs, $45.30 in timber cut and $15.09 in timber left for further growth. The value received from the timber cut alone gives a gross return on the investment of 15 per cent per annum.

FINANCIAL NOTE.

(For "Forb" Fanciers)

A happier caption, mayhap, for this homily might be "Funds from Flora," "Boodle from Brockweed," "Loot from Louseworts," or "Pelf from the Primrose."

Herr Theodor Oswald Weigel, bookseller and dealer in herbarium specimens, of Leipzig, Germany, in his latest herbarium catalogue (No. 74, 1927) intimates that he is in the market for "aus Amerika" herbarium specimens already yet, of the genera PEDICULARIS and VIOLA, also of the family PRIMULACEAE (including such genera as ANDROSACE, DODECATHEON, DOUGLASIA, GLAUX, PRIMULA, STEIRONEMA, and TRIENTALIS), and of the familiar bracket-fungus and mushroom family POLYPORACEAE.

Members of the Forest Service interested in selling plant specimens of the sorts indicated may care to communicate with Bro. Weigel. - W. A. D.

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Service Bulletin

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THE VALUE AND USE OF A GRAZING SURVEY

By Alva A. Simpson, Custer.

The discussion in the Washington Service Minutes on Grazing Survey leads one to believe that the failure of certain grazing surveys and management plans has largely resulted from a lack of administrative application of the data.

The justification of the survey has been largely judged by the use made of the information. Too many Forest officers have looked upon a grazing survey as a panacea for all of the ills of grazing administration. They have considered it as the patent medicine that holds all curative qualities, when in reality it is simply a resource survey which, to become effective, requires direction, modification, and use over a long period of time. The ranchman owning a body of land knows in his own mind the requisite details of his holdings that allow him to practice the particular form of management that is justifiable on that particular area and returns the largest dividend. No individual may know a National Forest or a ranger district with the same degree of intensity that the ranchman knows his own holdings. It is necessary that this information be placed in a form,-map, records, etc.,- that will allow an administrative officer to have the true picture before him in solving administrative needs. This form should be as simple as possible and retain all details.

Herein I wish to list briefly the use made of grazing survey data on the Custer.

Distribution of stock, equitable division of range between the permittees involved, knowledge of the extent and promotion of range improvements, proper zonal distribution, are only a few of the grazing problems that are being met. Range units are being subdivided upon the basis of the forage acres involved without controversy with the permittees. The divisions are figured out from the records and the details entirely settled without the necessity of prolonged field investigation of the unit under consideration. Here the value is obvious, it makes unnecessary the expenditure of time and effort in a physical examination of the unit. We have found that one of the greatest aids is the selling of the reconnaissance idea to the permittees before or while the survey is being made. No opportunity is overlooked and the result is that permittees are urging us to complete the work so as to begin a solution of their problems of range use.

A combination of the grazing survey with timber survey has been effected so that one man was able to cover 119,000 acres by intensive timber survey in one season in addition to his regular duties in other activities. The combination was worked out on the basis of taking from grazing survey only that data that could be effectively coordinated with timber survey. The effectiveness of the plan is mirrored in the low cost of a usable timber management plan.

Special use pasture permits have been entirely readjusted on the basis of the traverse of fences and estimates of forage values. The field work saved by using the grazing survey data represents many man days of time and the special use business is now on a standardized plane for all permittees. Incidentally, the survey brought to light numerous trespass cases that bid fair to increase materially the receipts from special use. How many intensively used Forests can say that they have no illegal lands uses? A grazing resource survey may startle you. In Land Exchange, the uniform knowledge of the forage resource on a forage acre basis may be the local solution of the grazing value on offered and selected lands. The capitalized forage acre is as true an index of this value as you will find.

We have found that the grazing survey has supplied us with needed information affecting all other activities. True, the 2" scale of maps may be inconsistent with other activities, but this is a feature that may be readily handled by one method or another and need not be considered as an inviolate standard scale. If the data are or have been incorporated into an unwieldly or unusable form of management plan, it is up to the Supervisor to recompile them in a form suitable for his local needs, and to the District Forester to modify the existing standards to meet these needs.

From the value and use of grazing survey data on this Forest, I cannot subscribe to any theory that the work is not justified and not entirely usable.

LEST WE FORGET

"PUBLIC SENTIMENT is everything. With Public sentiment nothing can fail; without it, nothing can succeed. Consequently he who molds public sentiment goes deeper than he who enacts statutes or pronounces decisions. He makes statutes and decisions possible or impossible to be executed."--Abraham Lincoln.

THE CAPITAN TRAGEDY

By F. C. W. Pooler, District 3.

At about 7 P. M., March 15, 1927, from his house in Encinoso, Lincoln County, New Mexico, Apolonio Romero saw a forest fire burning in Water Canyon on the north side of the Capitan Mountains in the Lincoln National Forest about a mile from the T. H. Shoemaker ranchhouse. Romero spread the alarm and went to the fire, which was found to be burning in two places, one hundred feet apart, under circumstances which indicated incendiary origin. The fire burned approximately five hundred acres of forest land and, with the aid of about eighty men, was brought under control March 17.

At about 4:30 A. M. March 16, three firefighters, Lloyd Taylor, Charles Pepper, and Apolonio Romero, went to an automobile parked on the road in the vicinity of the fire camp to get their food supplies preparatory to taking station on the fire line. Two rifle shots that pierced the automobile were fired at them from the T. H. Shoemaker ranchhouse, a distance of approximately one hundred yards. A rifle and six-shooter that had been left in the car were later found to have been taken. Shoemaker, during the day, told a neighbor that he had shot at the firefighters during the night.

In the evening of March 17, 1927 Lloyd Taylor and Charles Pepper, two of the men who had been shot at, appeared before Justice of the Peace A. H. Harvey at Carrizozo and Lloyd Taylor swore out a complaint against T. H. Shoemaker charging assault with a deadly weapon. Forest Ranger Willard Bond, owner of one of the guns taken from the automobile, made complaint for a search warrant.

Previously on November 25, 1924, and May 9, 1926, fires occurred in the vicinity of the Shoemaker ranch in connection with which there were circumstances strongly indicating incendiary origin and responsibility in Shoemaker. He apparently was anticipating arrest on a charge of setting the March 15, 1927 fire or on account of shooting at the fire-fighters, because he went to the neighboring Hipp ranch and stated that he did not intend to be taken and that he was going into hiding, and requested that this information be communicated to the authorities. Sheriff Thomas Kelsey of Lincoln County accordingly organized a posse for the purpose of locating and surrounding Shoemaker and in the hope of effecting the arrest without casualty. At about 11:15 A. M. March 18, 1927, Deputy Sheriff Peter Johnson, accompanied by Forest Supervisor O. Fred Arthur, who had been deputized by Sheriff Kelsey, were proceeding along the road in an automobile driven by Forest Clerk William C. White toward the Koprian ranch for the purpose of taking an observation station there. Enroute, passing the Block Company mail box in the vicinity of which Shoemaker got his mail, he was encountered. Deputy Sheriff Peter Johnson requested Mr. White to stop the car, which was done about thirty yards distant from where Shoemaker was standing beside his horse. Deputy Johnson jumped out of the car unarmed and started to go back toward Shoemaker. Advancing about twenty or thirty feet, Johnson observed that Shoemaker was endeavoring to remove his rifle from the scabbard on the left side of the horse. Deputy Sheriff Johnson shouted "he is going to shoot" and ran back to the automobile, got his rifle, and knelt behind the right front side of the car. In the meantime, Shoemaker fired a shot and the driver, White, slumped in his seat. Supervisor Arthur jumped out of the car as Deputy Sheriff Johnson was passing the car returning for his gun. Mr. Arthur took position to Deputy Sheriff Johnson's right. About this time White fell out of the car, face forward, being mortally wounded, a shot entering the back of his head and coming out through the face. A number of shots were exchanged, at the conclusion of which Shoemaker was dead. Mr. White was rushed to the Ft. Stanton Public Health Service Hospital, twenty-six miles distant, where he died the evening of March 18. A coroner's inquest called by Sheriff Kelsey who arrived at the scene a few minutes after the shooting, was held over Shoemakers' body by Justice of the Peace A. H. Harvey and Jurors Charles Pepper, J. F. Ellis, Hunter Hobbs, W. H. Sevier, R. A. Duran, and Samuel Farmer, resulting in a verdict that T. H. Shoemaker came to his death by reason of resisting arrest at the hands of a duly authorized Sheriff's posse.

Shoemaker, sometime previously, had, both verbally and in writing, stated that he would burn the forest grass and would kill any man attempting to extinguish the fire. He had also written threatening letters to Supervisor Arthur and Mr. White, the latter formerly Forest Ranger on the Capitan District in which the Shoemaker ranch is located. Similar threats were also made by Shoemaker against other nearby residents.

Upon search of the Shoemaker ranchhouse by Sheriff Kelsey, the rifle and six-shooter taken from the automobile were found concealed respectively between two mattresses and in a dresser drawer.

GRAZING BILL FOR ALASKA

By Will C. Barnes, Washington.

The passage on February 28 of Senator Stanfield's bill authorizing the Secretary of the Interior to issue licenses for grazing on the public domain in Alaska (Senate 3963) is the first and only measure covering general grazing on the public domain which has passed the Congress of the United States. This bill, which was approved by the Secretary of the Interior, authorizes grazing upon the Alaskan public domain through leases, fees for which will be established with due regard to the general economic value of the grazing preferences.

The measure was originally drawn up to meet the needs of the Eskimo and others grazing reindeer in Alaska, due to the fact that a further extension of that industry could not he handled in a businesslike manner unless it were possible to allot specific range to each owner and see to it that his animals were kept thereon and the number covered by the lease was not exceeded.

The leases are to run for 20 years, and considering the character of the country and the fact that under the law the Eskimo and half-breeds are granted free grazing without any limitations whatever, it will be an interesting matter to watch the development of this new policy. Heretofore the bulk of the reindeer have been grazed far to the north, either close to or above the Arctic Circle, thus making it a very difficult matter for the animals to be properly supervised or the meat to reach shipping points for removal to the United States. At the present time these herds are being moved under supervision of Government officials from these far northern ranges to the country immediately adjacent to the Government railroad extending almost 500 miles due north from Seward on the coast to Fairbanks in the interior. On both sides of this railroad are vast areas of grazing lands, some in grass but in larger part covered with lichens, the favorite feed of the reindeer.

LET THE MACHINERY DO THE WORK

By W. S. Williams, Lassen.

A great deal has been said at different times in regard to the use of various kinds of machinery and equipment in fire suppression. I wonder how many of us are making the proper use of what equipment we have on hand?

I have in mind the use of the one-horse Quillen trail grader in constructing fire lines. I had one of the things for a year or two before I even took time to put it together. Unconsciously I knew that it would work under certain conditions if one had it, together with a horse and harness, at the right place and at the right time.

Last summer, my fireman loaded the grader and an old harness with other equipment, and took them over to a fire that we had. As usual in such cases the few men we had were tired and our reinforcements had not shown up. To make the best of a bad situation, we hooked up an old saddle horse to the grader, and two men started out with it, a couple more following along behind throwing out whatever might fall back into the line and cleaning out places that might be missed. In less than two hours we made a good full two miles of trail with but very little physical labor and at a cost of less than $2 per mile. It would have taken ten men at least four or five hours and would have cost approximately $50, including transportation, meals, etc., to have made the same amount of trail by hand.

Under average conditions three men can make from 1¼ to 1½ miles of trail per hour with this grader. On the way back one can make secondary lines around snags and other bad places that one ordinarily wouldn't do if it had to be done by hand. It is surprising, too, the good trail that the grader will make in seemingly difficult country.

I think that it is the idea of not having horses on fires that stops most of us from taking the grader, but if we will think back over a few years it will be difficult to remember a single fire of any importance where there was not from one to a dozen horses that could have been used in an emergency.

After the above incident, it is needless to say that we always take the "go-devil" to fires, and it has been used several times since with equally good success.

PAINT FOR TRAIL MARKS

By F. E. Read, White River.

The article by Mr. Mitchell in the January 24 issue of the Service Bulletin has induced me to relate some of my experiences with paint trail marks.

The U.S.G.S. marks referred to by Mr. Mitchell must have been in very protected places or they used much better paint than I have been able to secure, as these marks are over 20 years old and still legible.

Eight years ago I started experiments with trail marks. I used white paint of two kinds, one was white lead and oil, the other the standard ivory paint. In protected places on dark barked trees the white paint served the purpose fairly well for two years, then it was so faint that it would only be noticed by careful observation. On light colored bark, such as the aspens, the mark became practically invisible in one year.

I tried red paint (Automobile and Buggy Paint) in marking ten miles of trail which covered the average conditions of the ordinary trail. When this trail was first marked and the paint was new the mark was very showy and I thought it would probably serve the purpose for marking trails as I had used a good grade of paint. However, I noticed that the red did not show up well at any great distance. This paint proved to be a complete failure, as the marks in exposed places had practically faded out before the end of the first season, and on some of the best protected places--north sides of rocks etc, -- the mark was faintly visible at the end of the second season, but by the end of the third season these marks had also completely disappeared.

The short life and lack of contrast in using either the red or white paint lead me to try the experiment of two colors that might give the desired results. For this experiment I tried white paint (white lead and oil) and the regular Forest Service green roof paint. When the white or the red paint was used alone I painted the regular blaze, a small spot above a longer mark, but when using the two colors the best results were obtained when the marks were placed directly side by side, several different ways of placing the paint was tried and the quickest and best looking mark was made by painting three horizontal stripes one just above the other with the outside stripes green and the center white. Fourteen miles of trail was marked 6 years ago by this method. This mark would show up well on any background and was visible for a considerable distance. The life of this mark is four years in exposed places, as the white has completely disappeared by this time. In well protected places out of the sun and wind the mark is still fairly plain, but this method is not satisfactory on aspen where the sun shines on it, as the green paint kills the bark of the aspens and leaves an ugly scar.

The method of applying the paint mark is not difficult and does not require much more time, if any, than is required to cut the standard blaze. In applying the paint 2 half-gallon friction top pails were used with a 1¼ inch brush in each pail. The brushes were kept out of the paint by hooks on the handles so they did not get too much paint and could be quickly reached. The paint should not be more than 1½ inches deep in the pails. Very little paint is required, but any extra supply could be carried in another container. On rough barked trees it is necessary to remove the loose outer layer of bark, on smooth barked trees the paint can be applied much quicker than the time required to cut the blaze.

Many of the main roads are marked with paint and it would require but little time for the public to learn the meaning of the painted trail mark, but painted trail marks have the distinct disadvantage of being very hard to remove and many of our trails used at present are more or less of a temporary route, especially the way trails, which should be clearly marked. Many of these "ways", no doubt, will be reconstructed into trails on a new location in many places. Then, the old marks should be removed. Roads are much more permanent and the paint seems satisfactory.

Some kind of a small tin trail mark that could be put up with one or two nails would be more distinctive and much better for trail marks, as it could be put on quicker than any other mark and it could also be easily removed. Personally I would prefer two designs of markers, one for trails and one for ways.

One big advantage of these tin markers over paint is that they could be put up during wet weather, but with paint the marks can only be put on during dry weather and then if it rains before the paint has dried the mark is ruined.

THE EVIL . . . LIVES AFTER THEM.

By E. E. Carter, Washington.

During the summer of 1926 a Bureau of

Entomology crew studied the insect infestation conditions on the western part of the Modoc Forest and adjacent patented lands. Insects are causing heavy losses in this region, but there is little that can be done about it, since about 75 per cent of the total volume of merchantable timber is in private ownership, the private owners are unwilling to incur the heavy expense necessary for the control of the infestation by artificial means, and there are some indications that the epidemic has already reached its peak. One patch of yellow pine of about 2,600 acres is separated from the main body of timber by sagebrush on open lands. Fire on the fourth of July, 1924, covered about 1,000 acres of this area. "Although the fire did not crown throughout the entire area, the humidity was low and the heat so intense that a great many trees with their needles only partly burned died as a result of the fire. During 1925 and 1926 a great many of these fire-weakened trees succumbed to the attacks of insects, thus augmenting the fire loss. Cores taken from the green, fire-scorched trees showed a great slowing down in their growth during 1925 and 1926.

"A strip 10 chains in width and two miles in length through the burned area and adjacent unburned area showed an average yearly loss for 1925 and 1926 of 300 trees killed by insects per section on the unburned area and 1,120 trees killed by insects per section on the burned area. Thus nearly four times as many scorched trees with their slower growth were killed by insects as in the adjacent unburned forest."

HELP IN A CRISIS

The tragic death of Chief Clerk White, of the Lincoln, emphasizes the importance of membership in the Government Employees Mutual Relief Association. White was unfortunately not a member of the Association, which exists solely for relieving some of the burden always attendant on sudden illness or death.

THE D-2 FIRE POLICY

Results Obtained And To Be Obtained.

By Howard Hopkins, Minnesota.

The fire problem in District 2 is handled in a way which differs strikingly from the established idea that Forest Officers can and should assume the entire responsibility for fire control. The policy as laid down and carried out in this District under Fire Chief McLaren, is dependent on each Ranger securing key men and cooperators in and about his district who will jump to any fire and work on it whether or not the Ranger is there. Key men are given authority to hire men and buy supplies in case an emergency before a Forest officer arrives, and both key men and cooperators are instructed carefully by the Ranger EACH year as to what is desired and expected from them.

It might be interesting to see how this policy has worked out thus far, and what can yet be accomplished.

Two of the main divisions of District 2 are the forests of the West Slope of the Rocky Mountains and the Lake States forests. It has been the writer's privilege to spend three years on the White River Forest, on the Western Slope of the Rockies in Colorado, and also to serve through a fire season in the Minnesota National Forest. While innumerable examples might be quoted, I will take for an illustration of the D-2 Fire policy, the worst fire which occurred during my stay on the White River and the worst fire of this year on the Minnesota.

The White River fire broke out late one afternoon on July 1924, during the worst fire season in many years. District Ranger Ahl was in the field and came back to his headquarters at 9 P.M. He was immediately notified of the fire by phone by the wife of a cooperator. Ahl then called the town of Meeker for volunteers and the word was brought to the Men's Commercial Club as they were just sitting down to a banquet. With one accord they left the meal untasted and chose a fifteen mile trip over so-called roads through the darkening night in order to cooperate with the local Forest officers. By eleven o'clock all the men needed were on hand at the fire, which was then sweeping through a heavy stand of fir.

Ranger Ahl had a hard 30 mile trip to get to the fire. On arrival he found that his key-man in that vicinity had arrived promptly, had taken charge as was expected, and was handling the situation in a very satisfactory manner. Every cooperator who lived in that vicinity had turned out voluntarily, two even nearly killing their horses by a 40 mile ride at break-neck speed to get to the fire. Such action coupled with well directed work on the fire and backed by later reinforcements from the Commercial Club at Meeker put the fire completely under control shortly after midnight. If the suppression work had had to wait for the Ranger to start action, a tremendous loss would have been involved and the acreage burned would have been in the thousands instead of a couple of hundred. It was due to the instruction and lining up of the key men and cooperators during the previous years that the loss was kept to a minimum.

May 15 this year was one of the worst fire days the Lake States experienced, with strong winds, a high temperature and a relative humidity in the afternoon as low as five. At 2 P.M. the lookout at Cass Lake reported a puff of smoke, which it was later found was detected within eight minutes of its inception, five miles south of town on the Forest Boundary. District Ranger Cummings and I made a five minute getaway and were at the fire twenty minutes later. On arrival, we found that the fire had become a crown fire and was racing through twenty foot red pine reproduction, with a sheet of flame 30 feet high and 30 yards wide fanned by the hard wind.

Though the elapsed time from discovery to arrival was less than one-half hour, the nearest cooperator was found already not only on the fire but ploughing a fire line with his team and plough. The key man in that vicinity was away at the time but his boys arrived as soon as they could get over the ground after seeing the smoke. As soon as the smoke was seen from town the local box factory shut down and sent its crew out to help. It is due only to such cooperation that the fire, in spite of jumping a half mile of swamp and throwing spot fires over half a mile in front of the main line through dense stands of old timber and reproduction, was checked at 7 P.M. that night and completely corralled at 3 A.M. the next morning.

The point is this: In the one case on the White River a fire was started in the worst fire season known in Colorado since the organization of the Forest Service and the Ranger in the field riding through a canyon over 30 miles away was unable to even see the smoke or get word of the fire, yet though burning terrifically in very dry material the fire was caught and checked by the key man and cooperators from that vicinity due to their taking immediate steps on their own initiative. They surrounded and held it until reinforcements of volunteers arrived from the nearest town, when the fire was completely extinguished.

In the other case we have the Lake States, furnishing one of the highest fire hazards which the Service has to cope with. A fire started on the worst fire day of the whole year, a hard wind behind it, no rain for months and a relative humidity of five. Admittedly about as hard a combination as can be found. Yet, due to a cooperator jumping on the fire at the start, with the neighboring cooperators flocking in and the nearby town turning out its labor voluntarily, the fire was caught and stopped that night.

There is no other possible conclusion than that the D-2 policy is a very important factor in the prevention and reduction of man-caused fires and has succeeded amazingly well in the quick suppression of such fires as have started. Fires in D-2 on the average have been held to such small size that someone has even said "There must be something in the air which prevents forest fires from spreading rapidly in the Rocky Mountain Region." A glance at the enormous old burns which have occurred in the past years over this area will convince one that the organization of the suppression work is the responsible factor which now catches most of such fires before they have covered more than a comparatively tiny area.

The building up of a force of key men and cooperators has been a wonderful factor in fire control and has resulted in almost eliminating the use of temporary guards from all parts of this district. What now remains to be done? There still remains the fact that the majority of these fires, though caught and stoped in their infancy due largely to the cooperating fire fighters were nevertheless man-caused -- therefore we must extend and intensify our efforts along all lines. The work so far done must be continued and at the same time the fire prevention work must be intensified; first by further educating the public at large, spreading the gospel at all times and places, and second by hitting hard with law enforcement all those who refuse to be reached by reason or request.

Others better versed in the details of fires over all of D-2 could write better articles than this, but it is sometimes worth while to hear from the field men as to how results actually obtained on the ground tie in with the results expected by those who have built up the policy that is now used throughout this district.

A STENOGRAPHIC RECITATION

'Twas the night before pay-day
When all through my jeans
I hunted in vain
For the ways and the means;
Not a quarter was stirring,
Not even a "jit",
The kale was off duty,
The green backs had quit.
Forward, turn forward,
O Time in thy flight
And make it tomorrow
Just for tonight.

Clipped from D. 6 Bulletin.

C.B.H. OR D.B.H.?

By Arthur Koehler, Forest Products Laboratory.

In the Service Bulletin for February 28, reference is made to a eucalyptus which in 10 years in the "kindly California climate" had grown to a circumference of over 7 FEET. I suppose this statement of the apparently enormous girth of this tree was made to call for an exclamation of "What th' Sam Bucus!" or "Oh, you onymus!" (as the boys at school used to call the humble evonymus). But does it register anything definite? I, for one, had to go through the process of dividing 7 by 3.14159 so as to get a mental image of what the tree would look like if I should see it before me. I couldn't visualize the circumference since I never saw the circumference of a standing tree.... Perhaps those who are accustomed to thinking in terms of curved space can perform the necessary mental gyrations.

Be that as it may, dividing 7 by pi gives us 2.228 feet -- not a large dimension for California, but a good idea of a certain optical augular displacement.

This is not the first offense. It seems to be getting the style among authors to express the transverse dimension of trees, especially large ones, in terms of circumference instead of diameter. Are we going to adopt a C.B.H. instead of a D.B.H.? C.B.H. is doubtless perfectly all right in the modiste's shop, but let the forester stick to D.B.H. and maintain a clear, he-man perspective. (Do we understand that this tendency is peculiar to California authors? Ed.)

A Hindu was invited to a large party and asked to bring with him a bottle of wine which would be poured into a large covered vat for the use of all the guests. He thought with so many contributions one bottle of water would not be noticed so he took this with him and poured it into the vat. When the time came to serve the wine, there was only water in the vat, as every person asked to contribute had had the same idea. If every individual feels that protection of the forests is not his business, the whole population is likely to have the same idea, and we shall have no forests. * * * * -Ellwood Wilson. Clipped From News Letter of N. Y. College of Forestry. (4)

Service Bulletin

U.S. FOREST SERVICE

(Contents Confidential)

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OREGON LEGISLATURE CLAIMS GOVERNMENT IS ATTEMPTING TO CROWD ITS TIMBER ON MARKET

In a joint memorial to the President, the Senate and House of Representatives of the State of Oregon stated that National Forest timber is being sold in unfair competition with the private owner, whose timber is subject to initial cost and carrying charges, and that the system is depriving private timber owners of a market for their lumber and tending to freeze out the private holders. They are requesting that sales of timber from the Government reserves in Oregon be confined to cases of actual need or where such sales are desired to promote needed common carrier railroad development of the section of the State surrounding timber which is sold and that no timber be sold until it is conclusively shown that it is actually needed or that such sale is desired by residents of that part of the State in which said timber is situated to assist in the needed development thereof.

Below is the context of the Forester's memorandum to Secretary Jardine:

"I believe the memorial is based on a misunderstanding of the policies of the Department in disposing of timber on the National Forests. Very few large sales have been made in Oregon or elsewhere which would not have been made if the recommendations of the memorial had been in effect, and those few represent efforts of the Forest Service to salvage deteriorating timber before there was further loss to the United States. Specifically, I know of but one large sale in Oregon since 1922 which was not 'desired to promote needed common carrier development' or desired by residents of that part of the State in which the timber was situated to assist in the needed development of the region. The large sale made in 1923 to Mr. Fred Herrick, and the subject of a recent investigation by the Senate Committee on Public Lands, is an illustration of how our large sales are often earnestly desired by the local residents, and lead to the construction and operation of urgently needed common carrier railroads. Negotiations are now being conducted for a large sale on the Ochoco National Forest which the residents of Prineville are anxious to see made, and which will help to maintain the railroad owned by that city and probably extend the common carrier railroads in its vicinity.

"The one exception which I have mentioned was the sale, also made in 1923, on the Cascade Forest to the Western Lumber Company. This sale involved 685,000,000 feet of timber, to be cut in 15 years. The timber is over-ripe. Defects, chiefly rot, were already so prevalent that deductions amounting to 30 per cent had to be made in cruising the area. I believe it to be sound public policy to sell such deteriorating timber before further loss occurs, and to replace this over-ripe timber with a new, growing crop.

"The policy followed is not to crowd timber on the market, nor to sell at bargain prices, but to make sales at not less than fair, carefully appraised prices and after public advertisement:

"1. To enable established mills to continue in operation, thus stabilizing the communities dependent on those mills for employment.

"2. To prevent the depreciation in value of Government timber which should be logged with privately owned intermingled timber that is being cut

"3. To aid in the development of regions or communities by the establishment of payrolls and transportation facilities.

"4. To harvest ripe or deteriorating timber before its value is lost to the owners, the people of the United States.

"In all cases, the starting of a new crop by proper provision while harvesting the old is an essential feature of our policy.

"The memorial is also, I believe, based on a misconception of the extent to which National Forest timber is being cut. The lumber cut of the State of Oregon in 1925 was over four billion two hundred million board feet, of which less than two hundred forty million feet - between 5 and 6 per cent - was from National Forest timber. For the part of the State west of the Cascade Mountains the Douglas fir-producing region, less than 3 per cent of the lumber cut came from National Forest timber. Obviously, the influence of National Forest timber can not be great on either the claimed overproduction of lumber or on the opportunities of private owners to sell their holdings.

"Large sales are made at irregular intervals, as opportunities arise to carry out the policies I have mentioned. It happens that there have been no very large sales in Oregon during the past year. In fact, only 107,556,000 board feet of timber was sold in that State in 1926, and only 383,982,000 board feet in 1925. These figures indicate the conservatism of the timber sale policy in effect, as contrasted with the pressure to sell which the authors of the memorial apparently feared

"After careful consideration of the memorial, I do not feel that I should recommend any change in the existing policies for the sale of National Forest stumpage in Oregon."

IF I WERE KING

By E. A. Woods, Kootenai,

While some of the following suggestions in better detection, fire fighting, and organization, may appear to be rather out of the ordinary, I offer them with a certain degree of confidence that they may contain some thoughts worthy of consideration.

Experimental Forest. In view of the great benefits agriculture has derived from the experimental colleges, it seems logical that much could be gained if each District would set aside one Forest as an experimental station, where the latest ideas in prevention and suppression could be tried out. I am satisfied that with the organization we have many ideas in better detection, protection, and suppression are lost or forgotten due to the lack of an experimental forest.

Crow`Nest Lookouts. For a number of years we have been using strategical points as lookouts. How valuable these lookouts have been is only a matter of conjecture, as no daily records of distance of vision have been kept. If we wish to know how valuable they are it is necessary to keep such records Nevertheless the lookout system has proved very satisfactory. Using it as a basis, it is only natural to suppose that if we establish minor lookouts overlooking each timbered basin we will realize a greater degree of efficiency. Hence I strongly advocate a system to be known as the "Crow Nest Lookouts". As every forester knows, each ranger district is divided into watersheds, large and small. Our present lookout system watches over these areas for any signs of fire. When a fire is located, a smokechaser is dispatched. However, many times because of lack of definite information, quick action has been retarded In order to overcome this difficulty we must consider every watershed, large and small, a distinct area and establish crow nest lookouts on strategical points overlooking these small units.

These crow nest lookouts need not be anything more than a rough platform, constructed on the tops of three or four small trees growing near together. The advantages of this system are: that the smokechaser will have a detailed view of the country in which the fire has been located, so that no time will be lost by the smokechaser climbing ridges, or wandering around trying to locate the fire. Instead, he walks directly to the tower nearest to the reported fire, and makes an observation.

By the use of a small looking-glass, which will be a part of his smokechaser's outfit, he will be able by an established code to keep the lookout informed as to the condition of the fire, providing that weather conditions are favorable for such signalling. If not, the red railroad fusee, as now used on the Kootenai, will be used at night from one of these established points, at a given hour. Prior to the fire season, each crow's nest will be visited by the district ranger, smokechaser, and lookout. On these trips the fire hazard of each particular unit will be discussed on the ground. It might prove expedient to equip each crow's nest with supplies rather than have the smokechaser carry them as we do at present.

Mobilization. In mobilizing our forces for an attack it is well to consider that the organization is divided into two distinct units, labor and equipment. In many instances labor has arrived at the fire many hours ahead of equipment. Consequently much dissatisfaction has arisen when no beds and provisions were on hand. This condition can be eliminated to a great extent by the preparation of a map or maps showing in distinct colors the areas and approximate hours labor will arrive at a fire prior to equipment. The hour map should be adjusted to meet the condition of each Forest, namely: Map 1 - hour 9 to 12; Map 2 - 12 to 3; Map 3 - 3 to 6. A study of these maps will determine how many hours the crew will arrive prior to the equipment. If it is determined that the crew will arrive several hours prior to the equipment they should be outfitted with a complete ready packed outfit of supplies, similar to the smokechaser's outfit, but assembled to meet the condition.

Night Fire Fighting. For seventeen years I have been deploring the logic of fighting a red hot fire all day and retreating when the enemy is in a weakened condition. However I know by costly experience that night fire fighting is the bunk unless supplemented by artificial light. Looking through the sporting magazines I notice that one or two outfits are putting out an electric search light that might well serve our purpose. If this search light won't do, let us determine what equipment we need, and get the Western Electric or some such outfit to make it. War conditions clearly demonstrated that if we want equipment to meet some particular need American ingenuity is equal to the occasion. With such equipment we could proceed on a twenty four hour basis with practically a twelve hour day equipment.

Further Suggestions. The Oliver Chilled Plow Number 144 is a humdinger when used with a good horse. Let's have more of them. We all know what dynamite will do. Somebody tried it out and pronounced it bunk. I don't believe it was the dynamite. Maybe a worthy experiment for the experimental Forest. Maybe some one has figured out a system of landing men and supplies by airplane. Whatever the idea maybe it might be worthy of consideration by the experimental station and advance us one step forward in the biggest problem of the Forest Service.

During last fire season when issuing camp fire permits to travellers, I was not only amazed but sometimes embarrassed by the numerous questions asked as to what advance we had made in handling forest fires. It is a well founded question. Let us get rid of some of our bewhiskered ideas and be up and doing.

"Almighty God, in the woods I am blessed. Happy everyone in the woods. Every tree speaks through Thee. Oh God! What glory in the woodland. On the heights is peace – peace to serve Him." – Beethoven.

FIRE AND OTHER FOREST SIGNS

By Will C. Barnes, Washington

At the recent joint meeting at New Haven of the American Forestry and the Connecticut Forestry Associations an unusually attractive exhibit was made on the walls of the large Assembly Room showing a number of signs of various sizes, colors, shapes, and character covering fire signs, camp, direction, and other similar signs used on forest areas; making an interesting study. They were in English, French, Spanish, Swedish, and two in the odd characters of the Cree Indian tongue which looked like a "Kosher" advertisement. Like Joseph's Coat they were of many colors. Some of them were not easy to read, even as one sat in the hall fairly close, while others could be read at a considerable distance. It was plainly seen that color governed legibility to a large degree.

Maine warned people to "Put out their Warming Fires", a new one to some of us.

The signs were placed on the wall in groups, usually under the State or government issuing them. A comparison of the color showed that yellow with black letters predominated to a large extent. In one group 4 out of 10 were yellow with black letters; in another group 8 out of 23; in another 11 out of 15; another 9 out of 22, and in another 4 out of 19. An average of about 40% for that color. All these yellow and black combinations were vastly easier to read than any other color scheme, unless it was the large flag of the American Forestry Association which consisted of a brilliant green background with lettering in yellow, a combination unusually attractive and legible. This exhibit excited so much interest that the Local Committee in charge decided to appoint a special committee to consider the various signs and report to the Association those two which in their judgment were the best considering visibility, legibility, appeal, lasting qualities of color, shape, etc.

This committee was composed of Vancel La Farge,–artist, son of the well known painter; Ralph Bryant of the Yale Forest School, and Mr. J. F. Ferguson, publicity man of the New Haven Chamber of Commerce; certainly a well equipped bunch of critics. Their report selected as the best two yellow signs with black lettering. Oddly enough they were both in the group exhibited by the Forest Commissioners of Quebec. The committee stated they did not believe that personal appeals, threats, or warnings of punishment were worth while. The shorter and briefer the statements on signs the better for all purposes. The yellow color generally used was a dark "yellow-to-orange" shade, which the committee stated fades much less than any other of the colors exhibited or used in the trades.

Altogether the thought of making an exhibit of signs was a very happy one and will undoubtedly to a large extent tend to standardize forest signs and signs along the highways especially the color schemes and such problems.

Not long ago the California Automobile Association made some very extensive studies of signs as to size, colors, wording, etc. Their report should give foresters a lot of valuable information on this very live subject.

WILD PIGEONS ON THE SANTA BARBARA

Wild pigeons are now arriving in the Santa Ynez Valley, and hundreds of them are scattered along the river as far up as Gibraltar Dam. No less than 500 of these birds can be seen each morning at the Santa Ynez Ranger Station.

In early days Santa Ynez Valley was one of the greatest wild pigeon hunting grounds in the country, tons of the birds being shipped to the market annually. The birds would pass over Santa Barbara, literally in clouds; but the pot-hunters had almost brought the birds to extinction before the

Government stepped in and closed the season entirely on these migratory birds.

In the last few years they have been increasing in numbers, and it is said this year that the wild pigeon is appearing in greater numbers than ever, on this annual visit. - District 5.

(Note: This is undoubtedly the band-tail. The passenger pigeon is entirely extinct. - W. S.)

TREE HEIGHTS

By L. I. Barrett, Southern For. Exp. Sta.

Recently the Southern Forest Experiment Station established a series of five experimental fire plots on the Cherokee State Forest which is located in the Shortleaf Pine Belt of eastern Texas. The timber on this area is all aged ranging from seedlings to mature trees long since ready for the saw.

As a necessary adjunct to other information 22 suitable dominant and codominant trees were chosen and their heights and ages were taken for the purpose of site determination. At the time the plots were established these heights were obtained by the Forest Service hypsometer with distances paced. On a later visit more accurate heights on the same trees were taken with distances chained. The comparison of the two methods gives some interesting results.

The arithmetical average height was 56 feet in both cases and the site index or the average height of the dominant and codominant trees at 50 years differed by only 1.5 feet.

Curves were drawn and carefully balanced for the heights obtained by each method and the following values read off:

VALUES READ FROM CURVES

	Height - feet.		Deviation of the paced from the chained.	
Age	Dist. paced.	Dist. chained.	+	-
25	36	34.5	1.5	
30	46.5	47.0		0.5
35	54.0	55.5		1.5
40	58.5	59.0		0.5
45	62.5	61.5	1.0	
50	65.5	64.0	1.5	
55	68.5	66.0	2.5	
60	71.0	68.0	3.0	
65	73.5	70.0	3.5	

Underlined heights are site indices.

The greatest error, as might be expected, comes in the taller trees, the paced heights exceeding those chained. This error also grows larger with increase in height. Evidently in this individual case the pacer was a little short on his distances.

Determination of site is becoming of greater importance as the need for more accurate yield estimates and more detailed management plans arise. Constant measurement of trees becomes a tedious process at best and for rough preliminary work as in extensive surveys one man by pacing can do the work of the two man crew required if distances for obtaining the heights are chained.

Although fairly close results were obtained in this case on our level, fairly open country we do not recommend it to our friend in the West where pacing sometimes becomes a matter of guessing how far it is to that rock ahead and then TRYING to get there!

THE INTRACTABLE SKI

"From February 22 to 25, D. A. Shoemaker of the District Office and I made a trip into the head of Willow Creek, Bear Creek, and Elk Mountain country, primarily to see what the elk herd did with themselves during the winter," states Ranger Johnson in the Santa Fe News. "We started from the American Metal Company's timber camp on Willow Creek with our camp outfit loaded on hand sleds of the coaster type. We did not go far till this method got old as the narrow runners cut through the snow. One sled was discarded by making a toboggan out of a pair of skis and putting the other pair of skis under the runners of the other sled. Deep snow soon made it necessary to use webs and we progressed at the rate of one half mile per hour and had to camp within one mile of Irvin's cabin, which was our objective.

"The next morning we made a toboggan of one pair of skis on which we loaded the entire outfit and made the remaining mile in two hours over the frozen snow, but it was necessary to use webs and skis the entire distance as the snow came within three or four inches of the top wire of the Irvin fence and the grade on the last mile doubled in steepness.

"Camping at this cabin we made our excursions on skis and the second day we made the top of Elk Mountain which is 12,000 feet high. The top and west slope was windswept bare and the wind seemed to be making at least sixty miles per hour. We had to dodge from cover to cover on the leeward side of the ridge, making the last three eighths of a mile on bare ground and stayed on top only long enough to get a picture and rest as the wind cut through our clothing like it was forty below zero.

"Returning down to Cow Creek Cabin which gave a mile or more of open smooth snow, Shoemaker showed his class on skis but the first time I approached the mile-a-minute class I dug my ski pole in so hard that it snapped off and I made the remaining distance sitting down on one or the other ski behind the foot binding, which lacked class but gave quite a thrill at that. The snow around the Elk Mountain region where it had not been disturbed by wind was very nearly four feet deep and, while I did not keep track of the falls after the first hundred, I spent considerable time getting myself from a position under the skis to an upright position above them. To the experienced, skis are very tractable, but to the inexperienced they are more obstinate than a balky mule. Their favorite trick is starting before one is ready, invariably throwing the rider over backwards. They are absolutely blind to trees or other obstacles in their path when they are really making time downhill.

"No animal life excepting a few coyotes and bobcats, snowshoe rabbits and a very few birds were above an elevation where the snow reached two feet in depth. The elk and deer were in the lower south slopes which were bare or partly so. - District 3.

HOW MUCH ASPEN WILL A BEAVER EAT?

By W. F. Cochran, Pike

The town of Green Mountain Falls hired E. A. Armentrout to haul green aspen to the lake in front of the post office to be devoured by the city's beavers. They paid him 25¢ per hundred lbs. for material 2 to 5 inches in diameter. There are 2 to 5 of the furry animals in the lake and they consumed from April 27 to December 3, 920 lbs.

During the fall they carried 800 lbs. into the lake during a single night.

At the above rate it appears that 2,000 lbs. of green aspen is about right for a year's diet for a single beaver, and probably somewhat in excess of the amount used under natural conditions.

YUCCA STATE FLOWER

The Governor of New Mexico by signing House Bill 371, has officially made the Yucca the State flower.

PAINTING TRAILS

By Lee P. Brown, Crater

Years ago I spent sometime cruising timber lands in the South, along the lower Mississippi. Throughout the country section lines were marked by red paint liberally smeared in the semblance of blazes on line trees. Witness trees were marked with a large red cross. The reasons for this use of paint instead of blazes were these: First, the southern bark beetle made short work of any pine, especially shortleaf, which was blazed or hacked very heavily. Second, in the hardwood bottoms blazing a tree frequently opened the tree to flood water and rapid decay. Since the butt cut of an oak or gum contains the most clear lumber it was important not to injure it. Most lumber companies with holdings of any size, 10,000 acres or more, had the section lines of their property marked with paint. For this purpose they employed a man at frequent intervals to freshen up the paint. One painting lasted about five years, and this on hardwood trees, the bark of which was tight and which did not scale off.

My observations there lead me to doubt the practicability of using paint for the following reasons:

1. On a Forest such as the Crater which has between 900 and 1000 miles of trails and ways, it would be necessary to employ one man full time painting blazes, because by the time he had the trails all marked it would be time to start in maintaining the blaze.

2. The expense of paint would be an added cost in trail construction and maintenance.

3. The cost of smoothing the bark and painting would be two or three times that of blazing.

4. It would be just as difficult to put on a neat looking "paint" blaze as it is to make one with an axe. Many a neat paint blaze would on inspection fail to pass muster because it is necessary to use a liberal supply of paint on the brush to get into the crannies and this will cause the paint to run or drip. Wet weather or wet trees would postpone painting.

5. Once on, the paint would begin to scale off with the bark.

6. The plea that too many blazes spoil trail signs would be equally as true of paint in a few years, as cut-offs, switch arounds and all the rest of the usual appurtenances attached themselves to the new markers.

As for tin signs, the Diamond Lake road is marked this way for the Oregon Fish Commission, who go in on the snow to take fish eggs. The signs are bright tin and can be seen a long way, especially when they catch the glint of the sun. However, after three or four years of use they "is aint" as Wildcat used to say. The tin signs go to repair some tin lizzie, serve as targets, or succumb to wind and weather. The latter is no small item, for the wind catches a small corner and wears the sign off the nail or the snow and frost pry it loose.

Altogether I still prefer the old trail blaze. Economy can be had in its making and its permanency. Sentimentally I'm for it because I've followed it into camp on many a black night by the simple expedient of feeling my way from tree to tree. Four trees without a blaze and I knew I was off the trail and made a fresh try. Even the old healed scars carry the sign for years and can be found in the dark, but if it were paint - well, I might "be there yet".

THEY STOOD THE GAFF

In the District One Annual Planting Report is a short account of a planting project of 47 acres on the Kootenai Forest. Western white pine 2-2 stock was used. The area was a tangle of brush, grass, logging debris and small brooks. "Two temporary laborers were hired to do the entire work. In the face of trying conditions for planting, and slight chances for success in the work, the survival of 75% found last fall was extremely gratifying. The two men hired for the work were cow punchers from eastern Montana who had that inborn appreciation of trees.

They planted carefully and saw the work to completion where the average planter would have called for his time the first day."

Many men will work in ice water on the drive, in blinding dust on landings, or under other disagreeable conditions, to get out logs. Here were two men who stood the gaff to make future logs possible. E. E. C.

BADGER HOLES HARDER ON LAMBS THAN COYOTES

By E. J. Williams, Medicine Bow.

In connection with my studying of the range management course some of my first range experiences and the heavy loss of lambs that occurred from getting into badger holes and perishing was brought to my memory.

I wonder how many have had experience with this class of loss among lambs and whether my heading of this article is justified.

For several seasons I helped with the lambing of my father's sheep on the range.

My first notice of this loss was brought about by an old ewe that had a pair of twins, one black and one white. She was an exceptionally good mother and always kept both the lambs with her. Upon making my rounds one day when her lambs were several days old, I noticed her off by herself with only the white lamb with her, and when I went to investigate, about 18" down in a badger hole I found her black lamb; it was still alive, but in the same hole were two other dead lambs.

Upon another occasion I saw a bunch of lambs that were about ready for docking, playing along a ditch bank. While watching them I saw one give another a butt just as he went to look down a badger hole in the side of the ditch bank and when I went to get it out I found another that had presumably been knocked in in the same way.

At other times I have found as high as five on one hole, sometimes all dead, part dead or all alive, not mentioning the times I have found one alone. The loss is heaviest among the very young lambs especially when they are less than a day old and the weather is a little chilly, they will fall into a badger hole without half trying. I do not think that the badger holes get nearly so many after docking as the coyotes do, but we have lost many up until they were several weeks old by this cause.

BOYCE WINS FELLOWSHIP

C. W. Boyce of the Office of Forest Economics has been awarded a Sterling fellowship of $2000 at Yale University for the school year 1927-28. Boyce plans to make an intensive study of economic principles and their application to forestry and will leave the Service on L.W.O.P. in October. His work will probably culminate in the degree of Ph.D.

THE FOREST FOUNDED ON FAITH

By R. D. Garver, Forest Products Laboratory.

In the Service Bulletin of March 14, Hurtt expresses curiosity about the development and progress being made in creating a forest out of the prairie sandhills of the Nebraska National Forest.

Not being an official member of the "Joiners" club I hesitate to apply for membership in the organization which Hurtt suggests, yet I feel constrained to do so, because I remember well the days we put in planting trees and the nights we spent in a partially unsuccessful effort to prevent prairie fires from sweeping over our newly made forest. Yes, now that I think of it, I too would like to know more about the Nebraska National Forest of today, for some 16 years ago the planting of trees in the sandhills looked to a "fagged" sophomore like "loves labor lost".

Service Bulletin

U.S. FOREST SERVICE
(Contents Confidential)

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TRAILING THE ENEMY

By E. N. Munns, Washington

The Forester's keynote letter to the Districts quoted in the November 15 Service Bulletin opens the way for a discussion of some of the points it raises.

One notes that an inquest is to be held. It is assumed that the various prosecuting attorneys have been, and still are, continuing their investigations and study to determine, (1) why the corpse, (2) why the police did not apprehend the criminal,and (3) what should be done to prevent further crimes by this common Enemy.

One wonders if the jury, or the prosecuting attorneys and their investigators will consider all the related facts in arriving at the final decision as to whether or not the Enemy is guilty, and of what, whether the police were fully armed and amply prepared, and whether the regulations already promulgated are really effective.

This keynote letter states that "success depends on catching fires small" and that this depends upon the men "in the woods where the fires occur." Similar statements have appeared from time to time and probably are true. But just how is one to know when why, and how fires occur? Are the available records being minutely scrutinized and thoroughly analyzed to determine this? I know that all Districts are watching part of their records, but, so far as I am aware, only one District has made a definite, conscientious and systematic effort in this direction. and that was five years ago!

One wonders if it is not time the Service made a thorough study of its fire business to determine the real effectiveness and development of its organization and not solely as it applies to some few "fire forests" but to all the National Forests on any one of which a catastrophe might happen. (Incidentally what is a Fire Forest?)

Is it not time,instead of theorizing as to the effect of various factors and guessing at what happens under a given set of conditions based upon partial facts, that we KNOW? And where can better information on such points be found than in the many and rapidly accumulating individual fire reports? Are we really functioning and are we really making progress? The expenditure of $2,500.000 in one year after many years of fire experience certainly does not look like much progress, yet we point to some records and say "we have progressed."

True, many questions will be answered, in part at least, to the satisfaction of many Review Boards and juries, and the various degrees of sheriffs will depart to look for clues and will try to apprehend the Enemy, while they overlook his obvious foot and finger prints already at hand which dozens of men have recorded dozens of times in dozens of places. One cannot help but wonder, for example, whether ALL the individual fire reports are adequately and satisfactorily filled out. I saw some not so long ago that failed in many particulars to give basic facts.

Lightning reports have been desired from lookouts on most western National Forests, yet in spite of the fact that lightning is one of the largest single sources of fire and the only really natural cause, how many lightning storms are properly reported and how many of the reports are systematically checked on the Forests?

Is not the Forest Service still passing along the same path in the allocation of fire funds as it has for years without taking into account the character of cover and its hazard liability? Several years have passed and the results of the first liability study yet remain NOT put into effect so that it is not alone "IN THE WOODS we find serious failure to apply existing knowledge."

It is to be noted that the Manual leaves a part of the task an open one, passing the buck as to how fully the fire statistics should be worked up, yet one wonders how many commercial organizations of any consequence in the United States would leave important facts relating to a business varying from $350,000 to $2,500,000 annually, to haphazard or partial compilation or to the desires of their regional managers! Would an insurance agency overlook losses or causes of losses? Would a selling agency overlook the trends of its business? Not being well versed in scientific business management I may be mistaken when I state that to me the answer appears axiomatic - They would not!

So again one wonders just how effective the sheriff and his cohorts will be. Will they get close enough by the famous Hunt and Peck method to throw salt on this bird? Will the shotgun hit-or-miss method apprehend the criminal if enough innocent bystanders get hurt in the process? It seems to me that the Enemy should be so thoroughly finger printed and catalogued that he can be apprehended or frightened away by the police as soon as he shows his head on the skyline whether his head take the form of a Lizzie, a donkey, or a thunder storm.

THE A. B. C. OF FIRE WEATHER FORECASTS

By E. F. McCarthy, Appalachian For. Exp. Sta.

In the Southern Appalachian Region:

1. Forest fires feed upon and spread largely through the agency of leaf litter. No other fuel may be said to control the fire hazard.

2. Leaf litter is very sensitive to moisture changes. It dries quickly under the influence of sun, wind, and low humidity. It absorbs some moisture from moist air or by precipitation of dew and frost.

3. Fire hazard exists in any period without rain when, through the agency of sun, wind, and dry air, the leaf litter has become dry enough to burn readily.

4. Such periods have a normal relation to the passage of storms (areas of low barometic pressure). They follow such storms.

5. After the passage of each storm center, an anticyclone normally follows. Air is settling in the anti-cyclonic area -- it is cold air -- it moves eastward or southeastward. The temperature usually falls with the coming of the ANTI-CYCLONIC FRONT. The absolute humidity usually falls abruptly with the coming of the ANTI-CYCLONIC FRONT. This means that drier weather is at hand. Whether the relative humidity rises or falls will depend on the comparative rate of change in TEMPERTURE.

6. The basis of weather forecast is the weather map. Such maps are created for the sole purpose of weather forecast. A large Bureau of the Government has evolved the weather map as the best basic means of weather forecast. It serves as well to forecast the movement of the anticyclone as the movement of the cyclone.

7. It only remains to understand (or disprove) that fire weather is the weather of the anti-cyclone. It starts with the advance of the anti-cyclone front -- it continues until a new low cyclonic low has checked drying by moist winds or actual rain. Leaf litter will lag very little in drying or in becoming again saturated.

The close approach of a new cyclonic

center which does not bring rain (a dry low) but which does increase wind velocity may cause a blow-up in going fires in spite of increased relative humidity.

To use the sling psychrometer as a sole instrument of weather forecast in eastern United States when storms can be seen approaching for two or three days, as mapped from Weather Bureau reports, is a mistaken use.

A curve of absolute humidity (vapor pressure) will assist in making a judgment from a weather map.

Relative humidity changes are so dependent upon temperature that the interpretation of causes of fluctuation is greatly complicated. It is, however, very valuable as an indication of rate of drying of forest litter. Wind as a factor should not be neglected.

"STAY WITH THE GAME"

(Our dear old friend Charles H. Shinn, during his years of labor in the Forest Service, wrote many a splendid letter and story. Seventeen years ago, while supervisor of the Sierra National Forest, he penned the following letter, which is so fine in spirit that Forest officers of today may well read it for the inspiration and loyalty to the Service that it manifests. - Ed.)

Northfork, California,
January 10, 1910.

To the District Officers,
Forest Rangers and Guards,
Gentlemen of the Forest Service of America:-

You know that our loved and honored Chief, Gifford Pinchot, is no longer our official leader.

It is not possible for any of us to express our sense of the profound loss that official American Forestry has suffered. Mr. Pinchot dedicated his life to public service, and his dismissal merely emphasizes and more strongly establishes his permanent place in the history of the Republic.

We can best help forestry by continuing to do our duty as he would himself wish to have us. Let us remember, therefore day and night, that we are set here on the fighting line in this dear old Sierra Forest, taking care of it for the people of America.

We must go on faithfully doing our work as best we may, under whatever new leadership we are given. We must still be loyal and even more loyal to the great cause of Forestry. Let us try to do even better work than before. Only by so doing can we truly honor that Forest Service which is the creation of Mr. Pinchot, and which others will now carry on.

The work is everything; men are nothing in comparison. Let us put aside and conquer every doubt, every discontent and pull together our very hardest.

It may be that we will never have such another leader, nor ever learn to love another as well, but we must see to it that forestry and the Forest go on forever.

If Mr. Pinchot himself were here in my office, while I write this, he would say what I am saying to you now. He would say to every ranger: "Stay with the Game."

One of us has paraphrased our recent Sierra motto for 1910 as follows:

"Now I got me up to work,
I pray the Lord I may not shirk;
If I should be dismissed ere night,
I pray the Lord my work's all right."

That is all there is to it. Now let us manage to do better work than ever.

Yours for the Service,
(Signed) CHARLES H. SHINN
Forest Supervisor.

Clipped From D. 5 News Letter.

THE SINS OF THE FATHERS

By Philip C. Wakely, Southern For. Exp. Sta.

In the December 6 Service Bulletin, the editor dubbed our Sonderegger seedlings "plastic pines," and with this mocking title published a brief note on these astonishing longleaf-loblolly hybrids and the projected plantation of them at Bogalusa, La. Perhaps the editor spoke better than he knew; the advocates of the "species" claim for it the virtues of both parents, but it has the weaknesses of both as well. Longleaf suffers from rust but not from rabbits; loblolly suffers badly from rabbits but hardly any from rust. An examination of $\frac{3}{8}$ of an acre (330 trees) of "Sonderegger pine," five months after planting the year-old seedlings, gives the following results: 11 per cent uninjured - 46 per cent rusted, 2 per cent bitten off by rabbits, 39 per cent bitten off by rabbits and rusted, 2 per cent other form of injury.

The enemies of the parent species seem to have damaged the offspring pretty much at will, but such is the vigor of the latter than even these classified only as "living" promise to recover and make height growth this year.

GRAZING PERIOD STUDIES

By D. A. Shoemaker, D. 3.

Vegetational readiness for grazing is reached when the principal forage plants have reached a stage where proper grazing will not seriously reduce their size and number or materially interfere with their reproduction. Such development should afford an adequate supply of feed for the livestock grazing the range.

Too early grazing results in the forage being used before it is ready. Undoubtedly the most widespread and serious overgrazing of many of our National Forest ranges has been due to too early use. Such grazing robs the plant of its food-making laboratory at a time when it is essential for the plant to manufacture its own food. The results are loss of vigor, reduction in forage volume retarding of first growth, lessening in amount and viability of seed and finally disappearance from the range.

This question has received a lot of study during the last several years and material progress has been made in more nearly correct seasonal use. Much remains to be done, however, not only in recording the development of vegetation and obtaining information as to the control and movements of stock, but in actually establishing on the basis of investigative data, the stage in the growth of each important species that represents its vegetational readiness. Sufficient information of this nature is available to make the broader adjustments, but we should have the necessary data to make the finer adjustments and know that we are on a sound basis. Some such data have been obtained at the Great Basin Experiment Station and in a few places elsewhere. Lacking the research organization to handle this important problem, it is believed considerably more can be gotten in period study work by administrative officers.

Panel "take-down" enclosures offer a means of opening areas to use at any season. A series of such controlled areas with the panels taken down at ten-day or two-week intervals, and with accurate vegetative records, would in a comparatively short time show the results of different seasons of use.

To insure data that are reliable and practical it is important that:

1. The studies should be made and the records kept at intervals of about ten days on the same area from the beginning of growth until vegetational readiness has unquestionably been reached.

2. Records of plant development should be made for several years on the same area in order to secure an average date of vegetational readiness.

3. In order to have the information necessary to manage the forage in accordance with its requirements, observations should be recorded as to the location of practical seasonal zone boundaries, the movements of stock and their control, carrying capacity of each seasonal zone and unit and the facilities available to the stockmen in caring for their stock while not on the range in question.

4. The grazing period and carrying capacity should be based on the development, abundance and growth requirements of the PRINCIPAL FORAGE PLANTS. Mistakes have been made by trying to determine vegetational readiness on the development of some "indicator" plant. The relative development of different species is not the same one year with another. For instance one year aspen leaves may be the size of a quarter when large mountain brome and slender wheat grass are just beginning to head, and the next year on the same area the aspen leaves may be no larger than a dime when the grasses are beginning to head. It is desired to perpetuate the important forage plants, and therefore the season and stocking must be based on these plants.

Such information is also essential to proper deferred grazing. Only recently when riding with a Ranger on a somewhat depleted range I asked him how late the range should be deferred to secure its reseeding. He replied that he did not know, when all he would have needed to do was to examine heads of two grasses, the principal forage plants on the area, to readily see that they were right then in their optimum stage of development for the advent of stock to free the seeds from their hulls, scatter them on the ground, and trample them into the soil

I know of a large area of depleted range from which sheep were kept until after August 25 for years without its improving materially. A close examination of this area revealed the fact that the principal forage plants did not ripen their seeds until about September 5. The almost mature seeds under the August deferment had been great "pickins" for the woollies.

A UNIQUE COOPERATIVE TOPOGRAPHIC SURVEY

By J. B. Yule, D. 1

During the past three years a combination topographic and cadastral survey has been developed cooperatively by the General Land Office and Forest Service on areas in the National Forests of Montana.

This type of survey has been so successful and has been improved to such an extent in this District that it is no longer considered a development project but is now classed as a standard survey.

Briefly, the field operations are divided into three general classes: 1. Control; 2. Survey of Land Lines; 3. Topography.

1. Horizontal control by the triangulation method and vertical control either by vertical angulation or by spirit level lines supplied either by the G.L.O. survey or the Forest Service, depending on money and qualified personnel available.

2. Land lines were surveyed by the G.L.O and their regular methods were used with the following exceptions: (a)A F. S. designed 3-chain trailer tape and improved topographic Abney level were used instead of the old degree clinometer and the 2-chain steel tape. This change permitted the recording of HORIZONTAL distances to all topographic and cultural features intersected by the survey line instead of recording SLOPE distances as was originally done. (b) Each section was closed vertically as well as horizontally, and contour line intersections as well as intersections of topographic and cultural features were placed on section lines. (c) Vertical angles were taken by transit from G.L.O corners or salient positions along section lines to triangulation stations, the elevations of which had previously been determined, thereby supplying reliable elevation points between which Abney level elevations are adjusted.

3. After skeleton section maps, which show cultural features, topographic features, and contour intersections along section lines as well as elevations of section corners, ridges, streams, etc. being made, the interior map detail is supplied by topographers hired by the Forest Service. Map detail in the interior of the section is filled in either by the staff compass, pacing, and Abney method, the traverse board method or planetable method, depending on the amount of timber and type of topography encountered. Whatever method is chosen, the topographic Abney level is used for spacing contours and obtaining differences of elevation.

To date about twelve (12) townships of typical mountainous topography have been completed to a standard that in all respects complies with the specifications of the Board of Surveys and Maps. The average cost per acre to the Forest Service has been about 1¼ cents which includes a standard type or cover map made by Forest Service topographers. The cost of the cover map is estimated to be about 1/10 of a cent per acre.

The plats will be printed in two colors; contours in orange and the remainder of the map in black. Arrangements have been made for a supplemental edition of a topographic plat over which will soon be superimposed a standard type map tinted in various colors to differentiate between timber and grazing types. Copies of this plat and an historical report will be sent to all District Foresters and District Cadastral Engineers interested in National Forest Surveys.

PLANTING IN THE LAKE STATES

By Fred R. Johnson, D. 2

The year 1926 marks the largest planting operations that have ever been conducted on the Michigan Forest. A total of 4,719.6 acres was planted on the Michigan at an average cost of $3.46 per acre, and an average of 662 trees were planted to the acre.

A total of 16,928 acres has now been planted on the Michigan National Forest. The average cost of planting during the past seven years, during which large scale operations have been conducted, is $3.44 per acre. Please note this cost in contrast with that of $25 per acre which Mr. F. W. Reed states in the November Journal of Forestry is the cost of planting. Next fall the operation will start on the basis of 5,000 acres annually, and it is hoped to increase this within a few years.

On the Minnesota Forest, 788 acres were planted at an average cost of $6.11 per acre. An average of 812 trees were planted to the acre. The total area planted on the Minnesota Forest to date is 9,532 acres, the average cost being $4.95 per acre. Considerable of this area can not be plowed because of the amount of brush and down material. It is hoped to entirely complete the planting of denuded areas on the Minnesota Forest within two years.

WHY NOT COW MONTHS?

By E. D. Sandvig, Custer

In every branch of the Service activity you will find advocates of something. By reading articles in the Service Bulletin you will find advocates for several different kinds of trail markers, wilderness areas, roads, fire fighting equipment, and so on, ad infinitum. I'm an advocate of abolishing the present system of issuing grazing permits for so many head of stock, and adopt the cow months or animal months scheme in giving a man his proportionate share of the grazing privileges to be distributed. Wouldn't it be just as easy for us, and far better for John Hereford, if we issued him a permit for 600 cow months, valid any time between May 1 and October 31, as it is to issue a permit for 100 cattle for the same period. Why do we stick to the old scheme when our range capacity records, our authorizations, and our annual reports, all deal largely in units of animal months?

In the ordinary conducting of his business, a stockman must have considerable flexibility as to the numbers of stock he can manage. Hard winters, bad market conditions, general range conditions, hay crops, financial conditions, all have a bearing upon his operation. The grazing regulations recognize all these factors in a broad general way and the most serious conditions that may affect a ranchman are taken care of by means of recognizing non-use of term and preference permits, refunds, and other lenient measures, but it is the little things that we have largely overlooked, to my way of thinking. For instance, if John Hereford ships his beef in September, he loses a month or two months of grazing fee on the animals he ships. It's a small amount, to be sure, but it happens every year. John Hereford doesn't think so much about that money but along in May or June, he wonders why it wouldn't be fair to him to put a few additional cows on over his permit to eat up that grass his beef won't get after they are shipped next fall. There's the point of this article. If we could issue John Hereford a permit in cow months, it would give him the flexibility necessary in his business and enable him to get actual use equal to his permitted use which is seldom the case at present.

I hesitate to stop here in arguing for the cause of cow months permits but for fear that Mr. Bulletin Editor will call me unnecessarily verbose, I'll stop with this interrogatory inference - Who ever heard of a lumberman buying his lumber in board feet units and selling it by the cord? That scheme of exchange fits our grazing business quite well when we inventory our ranges in cow months and sell on a per head basis.

LUMBER COMPANY TO TRY NEW METHOD OF FIRE HAZARD REDUCTION

A forest protection experiment of wide interest to lumbermen and foresters generally, as well as significant of the cooperative effort by which the Forest Service and the industry are attempting to solve Pacific Coast forest problems, was recently announced by District Forester Show. On an experimental area of 22,000 acres of National Forest and private land which is being operated by the Fruit Growers Supply Company, an elaborate system of fire lines and intensive fire patrol will be substituted for brush piling and burning. Since the company is also going to assume responsibility for fire control and since the privately owned land will be handled in the same way as the Government land, this is a departure not only in method of dealing with fire hazard in Government pine sales, but also in recognizing joint interest. - District 5.

MORE POWER TO MOTION PICTURES

By Theodore Shoemaker, D. 1.

A total of 5630 people attended the showing of motion pictures and slides during the Eastern Montana trip. This is an average of nearly 250 for each of the 23 towns visited. A little more than 1300 adults were included.

The method of arranging these programs will doubtless be interesting to those Forests that are planning to put on programs this winter. There seems to be a feeling that in the larger towns, where motion-picture theaters run steadily, there are no opportunities to put on our programs. That decidedly, is not the case, for without any direct contact in advance. programs were arranged in towns such as Lewistown, Havre, Glasgow, Sidney, and Glendive, with populations of from 2000 to 7000 people, and in many other towns that have picture shows daily. Generally, the school assembly was used, but in other places, churches, community halls, gymnasiums, and even motion-picture theaters were provided. The least satisfactory of all were the theaters.

A letter, with announcement of the program, and date, for posting on the school bulletin board, and a request that it be announced in the various rooms was sent to each City Superintendent about a month in advance. This was followed by a reminder, mailed so as to reach him about a week ahead of the date. The Superintendent was asked to make all arrangements and secure the publicity he deemed best. This was done in all cases, although it was found desirable to change the time and place in two or three instances after arrival.

The reaction to the pictures was universally good -- in places enthusiastic, and a welcome is assured for similar programs in the future. "WHAT THE FOREST MEANS TO YOU," "MARKING TIMBER," and "GOOD TURNS FOR OUR FORESTS" were used most and were received best.

WHOLESALE WIRE UNTWISTING

Starting the second week in November the DO embarked on a large scale wire untwisting job that was finally stopped on March 1, with all Forests supplied with enough wire for several seasons' use. There was a full carload of the wire, a total of 120 miles of double strand insulated #17 gauge copper clad steel wire. Using a Ford truck for power, driving a rope belt from a pully clamped on a rear wheel, 869,400 feet of single strand wire were obtained in this season's work, or 82½ miles of double strand wire untwisted. One temporary laborer was used, the additional labor being supplied by the DO messenger boys alternating on the job. The device employed, a Ford front wheel, with axle sunk into the ground, carrying two uprights on the wheel with a drum for the wire swung on a shaft between, was the idea of Ranger H. Garvin Smith of the Datil, sole patentee, owner and proprietor. No royalty demanded for anyone wanting to use the idea. With the outfit, a two man crew and Ford turned out six reels, totalling an average of 13,000 feet of single strand wire, for each day's work. - District 3.

NEW DEPARTMENT OF NATURAL RESOURCES FOR CALIFORNIA

The new Department of Natural Resources for California, recently created, will take over all the duties of the State Mining Bureau, State Mineralogist, Department of Petroleum and Gas, State Oil and Gas Inspector State Forester, State Board of Forestry, California Redwood Park Commission, San Pasqual Battlefield Commission, Mt. Diablo Park Commission and State Fish and Game Commission.

The Department will be administered by a Director of Natural Resources, appointed by the Governor and holding office at his pleasure. The salary for this position is set at $6,000. The work of this Department is divided into four divisions to be known as the divisions of mines and mining, forestry, parks and fish and game. The heads of these divisions are to be appointed by the Director of Natural Resources.

The Division of Forestry will have as its chief the State Forester, who must be a technically trained forester, nominated by the State Board of Forestry. This Board will consist of seven members appointed by the Governor. Of the seven members one shall be familiar with the pine timber industry, one with the redwood industry, one with the livestock industry and one with the problems of water conservation.

WHAT DO RANGE EXAMINERS EXAMINE
or
WHEREWITH DO EXPERIMENT STATIONS EXPERIMENT?

In a recent collection of plants from the Jornada Range Reserve and Experiment Station is a specimen of sotol (DASYLIRION WHEELERI) collected by Junior Range Examiner R. S. Campbell. In commenting on the "FORAGE VALUE" of this species (on the Form 767) Mr. Campbell pens this intriguing note: "None for STOCK. PROPERLY made up it is a GOOD drink. sotol being about 40% alcohol" (N.B. The capitalized words are by the undersigned).

Mr. Campbell bears an excellent reputation both for veracity and as an investigator; did, however, he obtain the above information by means of the "trial and error method"- or how? Moreover, is not such post-Volsteadian use of the adjective "good" most reprehensible? I move that this be referred to Public Relations. - Daytonius.

Service Bulletin

U.S. FOREST SERVICE

(Contents Confidential)

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THE FOREST SERVICE

By Will C. Barnes, Washington
(In the Ames Forester)

Early in 1896 the Arizona papers carried some press reports to the effect that the President had designated certain areas in the West as Forest Reserves, some of them located in the timbered areas of northern Arizona. The news created but languid interest among Arizonians. Washington was several thousand miles to the east, many of them had scrapped for the mountains with the Apaches, and all were filled with the old pioneer spirit of discovery and ownership We were in possession. Why worry?

Later on there appeared upon the scene a so-called forest ranger, who advised us that the Government looked upon grazing of livestock in the timbered mountains as injurious to the trees and watershed and that sheep especially were to be excluded and mebbeso cattle. How the stockmen did snort over this idea! The ranger called on the stockmen to furnish him with the number of sheep or cattle we had been grazing on the mountain ranges, how long we had used them, how much land we owned and where located, and various other inquiries of similar import. To all of these we were inclined to reply that it was none of his blankety blank business, etc., etc. Some did make such reply in loud coarse voices and with illy concealed disrespect for the ranger's authority. If the ranger had not been an ex-cow puncher whom we all knew there surely would have been a movement to hang him; in fact in those days a forest ranger was certainly persona non grata to the majority of stockmen in the western range states.

Then followed a year or two of wrangling over the removal of the stock. Those fellows back in Washington seemed really to mean what they said. In 1897 came orders that pending a decision each stockman must procure a permit covering every head of stock he was grazing on these sacred areas. What those western stockmen said about this proposition was a plenty. There was no question whatever in their minds about the need of a hanging festival with several forest rangers in the title roles. Cooler heads prevailed, however, and most of them secured their permits in due time. Those that didn't lived to regret it

Some time during the year 1900 there appeared in the mountains of northern Arizona two long, lean, clean cut young fellows who were immediately spotted as scientists ("bug hunters") by the local people. They turned out to be Government men from Washington. Their official mail came addressed to Gifford Pinchot and Frederick V. Coville. They tramped over the mountains measuring trees, taking photographs, gathering specimens of plants and flowers, watching the stock graze, talking to the stockmen, and altogether deporting themselves according to the conception the average western man had at that time of a Government scientist. They seemed perfectly harmless, however, and comparatively little attention was paid to their actions. Coville, we learned, had previously spent a couple of years studying sheep and cattle grazing in the Cascade Mountains of Oregon and Washington. Eventually we heard they had advised the Washington authorities that a reasonable amount of cattle grazing was comparatively harmless to the forests in Arizona, but that sheep should be carefully watched, and kept from some areas entirely and limited on others. This policy was put into effect by a Land Office circular of November 6, 1900. The sheep men fought this idea vigorously but made no great headway against it. The situation, however, was irritating to the stock interests and they appealed to Congress to help them out. We talked brilliantly about our inalienable right as American citizens to use the public lands when, where and how we pleased, but made precious little impression on Congress or anybody else.

The final blow-up came, however, when in 1905 the announcement was made that the Government was going to charge fees for the livestock using the forest areas. This fairly took our breath away. Wow! How we did go on! The plan was resurrected for hanging all forest officers, regardless of their personal charm. It seemed the most satisfactory means of settling the controversy and the method was talked about very freely wherever a few western stockmen got together.

Meantime, in 1905 an act of Congress took the Forestry Bureau from the General Land Office in the Interior Department and placed it in the Department of Agriculture. Gifford Pinchot was put at the head of the new Forest Service, which took the place of the old Bureau of Forestry. Some of us Arizona cow persons who had talked with him on the ranges saw light ahead. Pinchot really seemed almost human we agreed.

As they began to get better acquainted with and learned something of the plans of the Forest men for handling the forest areas, the more level headed of the stockmen realized that there was more in the idea of injury to the young timber and also to the watersheds by heavy grazing than we had previously cared to admit.

Also we realized, but hated mightily to admit it, that the ranges had been seriously damaged and that the grasses had not been given a fair chance for their lives, with the result that the carrying capacity of the ranges was steadily growing less and that we were the heaviest losers. It had been obvious for some years that the stockmen themselves could not regulate their affairs on the range in any satisfactory manner. Hence the intervention of the Government officials who had the power to lay down certain rules for the use of the range rather appealed to many who believed it was bound to react for the good of the industry and give the stock business a stability and permanence that could be secured in no other way.

Mr. Pinchot went to Arizona and coaxed Albert F. Potter, a young stockman who knew the range business from one end to the other, also he had good judgment and common sense plus, to come to Washington as his Chief of Grazing, a wonderfully wise choice. Potter had "run" both cattle and sheep, a rare thing then.

In those days forest rangers were mostly cowpunchers, sheep herders, lumberjacks, and the like, local men whom we knew well. They understood the West and its people, knew the livestock business from the ground up. They had very little practical knowledge of forestry or the effects of overgrazing on watersheds, but were admirably suited in every way as pioneers in paving the way, so to speak, for a later class of men educated and trained for the work who have followed them and to a large extent have taken the places of the old timers on the ranges, in the lumber camps, and in general administration of the Forests throughout the West. The old timers were able to stand an examination as to their ability in riding a bucking horse, throwing the diamond hitch, shoeing a pack mule or a horse, finding their way through the timber back to camp of a dark night, rounding up a bunch of wild horses, cutting cattle out of the roundups, or handling a lambing camp. However, on the technical, professional side of their job the early rangers were sadly lacking. They didn't know whether cambium was a new breakfast food or a patent medicine. The whole world was veritably covered with trees, why worry about any more? Today their places are being filled gradually by young fellows, graduates of the forestry schools, agricultural colleges, and such educational institutions, where they have secured a thorough knowledge of the fundamentals of forestry, including botany which is a prime requisite for the grazing work to which many of them turn their attention after they enter the Forest Service. These boys who are now coming to us from the forest schools may know comparatively little about the diamond hitch, the merits of a double rig as against a single rig saddle, how to make sour dough bread, rope a calf or dip sheep. On the other hand, however, they know all about trees, plants and their forage values, the effect of erosion on denuded mountain sides and such matters, and what they lack of practical range experience can be secured as apprentices right on the ground under the keen eye and friendly guidance of a competent experienced forest ranger.

AMERICAN FOREST WEEK ACTIVITIES IN WASHINGTON

The new film "The Forest and Water" will be shown all week at the Palace Theatre by courtesy of the Manager. Mr. Will H. Hays' organization, Motion Picture Producers and Distributors of America, have taken 15 copies of this film which will be distributed before, during, and after the week April 24-30. The distribution centers are: Cleveland, Cincinnati, Indianapolis, Detroit, Milwaukee, Seattle, and Salt Lake City.

On April 30 at 8 p. m. Mr. H. N. Wheeler will address the D. A. R. at the National Museum.

Pupils of the Seventh and Eighth grades in the District will be reached in a series of 13 meetings. At each of these meetings a talk on forestry will be given, the films "The Forest and Water" and "Pines - from Seed to Sawmill" will be shown, and a new song written by Mr. Everard will be sung. At the opening meeting on Monday the speaker will be Mr. Sidney Taliaferro, Commissioner of the District of Columbia, and music will be furnished by the Marine Band. Speakers at the other meetings will be Mr. H. A. Smith, Mr. C. E. Rachford, and Mrs. L. M. Heisley of the Washington Office.

In the way of newspaper publicity the American Forest Week Committee and the Forest Service cooperated in giving to the press a large number of appropriate articles, news items, and photographs. A series of news stories for individual States were released by the Forest Week Committee for local circulation and the committee also turned out more general regional stories for the principal forest regions and a number of special stories on various phases of forestry work. With the aid of the Forest Week Committee the Public Relations Branch of the Service has furnished news copy and photographs to more than 100 newspapers in the eastern States to be used in special pages or rotogravure sections in their Sunday issues of April 24. The Forest Service also sent copies of the President's Proclamation and other material to agricultural editors throughout the country and to all daily newspapers and county seat weeklies, together with letters inviting their cooperation in putting American Forest Week over. Letters were also sent to libraries throughout the country suggesting that they post the proclamation and set aside books on forestry during the week for the use of patrons. Several magazines have contributed space to our Forest Week stories. A large number of special requests from newspapers and writers for material have been taken care of, and over 2,000,000 pieces of Forest Week material have so far been distributed.

LARGE PULPWOOD SALE IN ALASKA AWARDED

The sale of 8,350,000 cords of pulpwood on the Tongass, for which bids were opened on April 15, has been awarded to I. and J. D. Zellerbach, of San Francisco. The Zellerbachs' bid was 80 cents per one hundred cubic feet for spruce pulpwood and 40 cents per hundred cubic feet for hemlock pulpwood. This timber is located in two tracts, the stands running about 75 per cent hemlock and the remainder spruce. The Zellerbach bid therefore averages 50 cents per cord, and the competing bid offered an average of only 45 cents.

The establishment of at least a 200-ton paper mill in Alaska is required as a condition of the sale, with the opportunity to expand to 500 tons. The areas in which the pulptimber is located are cut up by a system of sheltered waterways readily accessible the entire year, and excellent water power sites are abundant. An application from the Zellerbachs for permits on a number of water powers in the vicinity of Ketchikan, is pending before the Federal Water Power Commission, and the Forest Service will recommend to that commission that permits be issued to the Zellerbachs. The award of timber is conditional upon the receipt of such water power permits and terminates automatically if the water power permit is canceled for failure to comply with its terms.

It is expected that it will take at least one, and probably two years, to complete the engineering studies necessary before construction of the paper mill can be begun, and it may be five years before paper is actually being produced under this award. The development of the water powers will require an investment of several million dollars, although the cost per horsepower will be very much less than in the case of most new power projects now available in the United States.

The bids received for this timber in the vicinity of Ketchikan indicate that, in the judgment of experienced pulp and paper manufacturers, the expansion of the newsprint manufacturing industry to southeastern Alaska is now economically feasible, and that the contract offered by the Forest Service is reasonable and attractive. The prices bid for pulpwood are 25 per cent higher than the minimum prices set in the advertisement.

Bids for a similar quantity of timber in the north end of the Tongass Forest, tributary to the large water powers in Port Snettisham, will be opened on the afternoon of April 25.

A MOUNTAIN LION

By S. L. McNelly, Missoula.

During the two years spent on the West Fork District of the Missoula Forest, I have at different times heard stories about a certain young man on this district by the name of Harold Wyman. These stories were always about mountain lion, were very interesting, and were exceptional in that they varied considerably in the telling. Wyman is about 25 years of age, stands about 6 feet 2 inches in his goat hairs, and is built in proper proportion to his height. He is quite modest, and it is difficult to get him to tell of his lion hunts.

Last fall, while on range inspection in that part of the district, I stayed overnight at the Wyman Ranch, and bunked with Harold. On going to his room I noticed a very large lion rug and mentioned to him that it was an unusually large one. He admitted as much. After a careful roundabout approach I asked him to tell me the story. Here it is.

Wyman has two fine Russian wolf- and bloodhounds, crossed. One day, while running coyotes on Upper Stony Creek, the dogs suddenly stopped and gave several short barks or yips which told Wyman that something other than the ordinary coyote trail had been found. The scent was evidently fresh so it was with difficulty that he kept within hearing distance of the hounds. After a strenuous run to the Bitterroot Divide, across Little Stony Creek and to an open ridge on Williams Gulch, a distance of about 8 miles, he heard the dogs give the baying signal which indicated that the chase was over. By this time Wyman was sure that it was a lion and that the dogs had it treed. After reaching the dogs he found that it was a lion, a big fellow, on a large limb about 40 feet up.

Instead of shooting the lion at once he decided to catch up on his wind, and eat his lunch. He sat down a few feet from the tree where he could keep an eye on the lion. His rifle was laid on the ground at his right hand in a position for a quick grab in case the lion decided to leave. The dogs were on opposite sides of the tree, watching for the least hostile move. Mr. Lion was switching his tail in the usual manner of indicating his disapproval at being placed in such a situation.

Wyman was well along on the second course when one dog whined and stood up. Wyman, who had taken his eyes from the lion for a moment, glanced up just in time to see the lion spring toward him. He grabbed his rifle, shot from a sitting position, and fell backward just as the lion landed at his side. Using the end of the rifle barrel he pushed the lion away from him as it went through its death struggles. Upon examination a few minutes later, he found that the bullet had gone through the neck in just the right place to put an end to the hunt.

SHEEP AND YELLOW PINE IN MONTANA

On May 26, 1926, Elers Koch, C. D. Simpson and Glen A. Smith visited the stock corrals at Superior, Montana, on the Lolo National Forest for the purpose of determining the amount of injury to yellow pine reproduction by sheep.

Nine bands containing 10,200 grown sheep and 13,800 lambs are loaded and reloaded at the stock corrals at Superior, Montana, and are held in the yellow pine stand in the vicinity from twelve to eighteen hours. This gives a total of 20,400 sheep and 27,600 lambs held in the immediate vicinity of the corrals for from twenty-four to thirty-six hours this season. These corrals have been at this place for at least ten years. Logging was carried on here probably twenty years ago.

A careful examination of the yellow pine reproduction on the area where the sheep were held showed that a few terminal buds had been injured and a few of the lower needles, but from the condition of these it was questionable whether the injury had been from sheep, elk, deer, or insects.

The extreme use of this area, because of its being a holding ground used both spring and fall, represents a heavier use than that which a bed ground used for a period of ten days would be subjected to, since the sheep come off the cars hungry and returning in the fall they arrive hungry from the trail, while sheep coming into bed grounds under regular range conditions are full and are moved off of it at the break of day.

This particular area of about fifteen acres was well drained and slightly rocky where reproduction of yellow pine, fir and larch from four to thirty and forty years old was present, the lower branches of which were well within the reach of sheep. The investigation was carried over the Whitman sale area which is used as grazing grounds by sheep both going and coming from their summer range. This sale area lies on either side of a driveway upon which there is little feed, and receives an annual use greater than that of the regular allotments.

A large number of yellow pine trees ranging from one to ten years old were examined, but not a single tree was found to have been nibbled in the least by sheep. Reproduction on this sale area seemed to be on a satisfactory basis since counts were made on several sample plots 20 feet square wherein fourteen yellow pines one to ten years old were found. Bed ground areas also showed no injury to the reproduction, or at least there was a good sprinkling of yellow pine, fir and larch one to ten years old, healthy and thriving considering soil and site conditions.

The Hill Allotment on Trout Creek was also visited where an abundance of yellow pine reproduction was present ranging from one foot to ten and fifteen feet high, all in a healthy, thriving condition. Careful examination failed to reveal any damage to this stand of young trees. This allotment was heavily used in 1925, and for some seasons previous.

The results of this examination would seem to indicate that injury to yellow pine in Western Montana from sheep grazing is negligible, and need cause little concern. The large volume of succulent forage generally available on these ranges no doubt is the fundamental difference between these and the Southwest ranges. - District 1.

(Huxley once said that Herbert Spencer's idea of a tragedy was a deduction killed by a fact. One may make sweeping deductions on the pros and cons of sheep damage and later find them the victims of a homicidal fact-finder. The puzzling variations in the extent of sheep-damage themselves argue for caution in applying the results of one observation to another region. For this reason we suspect that the last paragraph of this interesting article takes in too much territory - at least until more widespread observations are possible - W.S.)

(From general observation on yellow pine reproduction in the Southwestern district we evidently have much to learn as to why the young trees come in heavily on one closely grazed area while a few miles away not one can be found on an area to all appearances identically the same. Boy, page Research. - W. C. B.)

SIC TRANSIT GLORIA MUNDI

"177 Oliver typewriters now used by Rangers are to be replaced by standard keyboard machines." - District 2 news item.

Alas, all the picturesque distinguishing marks of the old-time Ranger are going or gone. Where are the saddle horses, the stilt-heeled boots, the Gila and Salt River hats, the heroic chaps, the Levi Strausses, the six-shooters, the spurs with a two-inch rowel . . . . ?

And now the Oliver is going - Oliver, the last stronghold of the hardboiled ranger; Oliver, the friend of the crabbed penman; executor of racy reports, imperative commands (to permittees), and convincing alibis (to supers); Oliver, with the moth-eaten ribbon, the ink-clogged type, the ten-pound touch, and the trip-hammer click; Oliver, the indestructible - the Ford of the Literary World!

Oh, Progress, what crimes are committed in they name! With the approaching perfection of television, it will probably be possible to equip the ranger stations with long-distance periscopes and so make it unnecessary for the ranger to go outdoors at all. - Sagebrush Sam.

REGARDING FIRE STATISTICS

By John McLaren, D-2.

In published articles and reports we note several times annually the number of fires that occur in the United States and how many are credited to specific causes. Among the latter the railroads are frequently taken to task as chief offenders. They are without doubt responsible for a great number of fires, but due to a lack of uniformity in analyzing and recording "causes" of fires, the number charged to railroads is out of balance and unjust to railroad organizations, in my judgment, and the total number of fires reported for the country is thus also swelled disproportionately.

Railroad organizations, in a certain State I have in mind, are required to report to State authorities each and every fire started on the right of way regardless of size, of surrounding conditions, or action taken. Thus a speeder patrol following a passenger train may extinguish, say, twenty fires on his section on a given day, all of which are reported and included in State statistics, though an analysis may reveal that no one of these represented a hazard to adjoining areas. This may be true because of topography, because a broad river forms a natural fire guard, or it may be that artificial fire guards have been constructed which effectively prevent the spread of fire from the right of way. In some cases where annual or semi-annual burning off of the right of way is practiced, fires handled by the patrolman are only burning "spots" in ties, and many of the fires handled by him would not escape beyond the fire guard even if not seen.

Some members of the State organization contend that it is desirable to record all such fires, regardless of control, because it is worth while to know that the operation of trains really results in starting a given number of fires. The knowledge of such fires is worth while for its informational value, but it should be conceded that the companies are privileged to burn their rights of way as thoroughly and effectively as they please, whether purposely or accidentally, and that so long as fires are handled by railroad employees and kept within the bounds of the right of way or established fire guards, the State and Federal Governments will not be unduly concerned; and only in case of spread beyond the limits mentioned, or in case it is necessary for State or Federal men to take action to prevent damage, will such fires be considered in statistics. The Forest Service does exactly this now and it seems to me that an effort should be made to have cooperating States follow the same principle.

HISTORIC LONG HORN CATTLE TO BE PRESERVED

That the long-horned, or Spanish breed of cattle, once so numerous in the Southwest, may be preserved from complete extinction, the Forest Service, will maintain a herd on the Wichita Forest in Oklahoma. The agricultural appropriation bill signed by President Coolidge on January 17 carries an item for their purchase and maintenance.

The department has for several years urged the necessity for a small herd of these picturesque examples of early pioneer life of the Southwest for the benefit and education of future generations interested in pioneer history.

The Wichita Forest lies right in the heart of the range of the old southern herds of plains buffalo, and is a part of the region formerly known as the Indian Territory, where now live more than fifty thousand Indians.

Here also grazed some of the pioneer herds of these long-horned cattle when the livestock industry in the Southwest was in its infancy.

There are still a few living members of this once numerous breed of cattle to be found in Texas. The herd for the Government will be selected by expert cattlemen familiar with the characteristics of the cattle and of the southwestern ranges. They will be grazed in a pasture immediately adjoining the one occupied by the herd of buffalo now established on the Forest.

CIGARETTES

Letters have been sent to twelve manufacturers of well known brands of cigarettes asking their cooperation in the campaign against forest fires. We think Hutchinson was the pioneer in soliciting this sort of cooperation. This time it was suggested that possibly the free-burning quality in cigarettes might be reduced or that the butt end for half an inch might be made non-incendiary.

(This gives an opportunity to our technicians who are not sure that cigarettes are as bad as they are reputed to be to shed some light on the matter. The subject is in order. - Ed.)

EXAMINATION FOR SILVICULTURISTS

The Civil Service Commission announces open competitive examinations for the positions of Senior Silviculturist, Silviculturist, Associate Silviculturist, and Assistant Silviculturist.

The entrance salaries and duties of these positions are: SENIOR SILVICULTURIST, Salary - $5,200. Duties - To plan, conduct, and direct major investigations in silvics and silviculture and in plant ecology, physiology and genetics, mathematics, and soil science, and to supervise the preparation of publications based upon these investigations. SILVICULTURIST. Salary - $3,800. Duties - To plan and conduct, under general administrative supervision, individually or with associates or assistants, major investigations and experiments in silvics and silviculture or in plant ecology, physiology and genetics, and soil science, and to prepare the results of such investigations for publication. ASSOCIATE SILVICULTURIST. Salary - $3,000. Duties - To plan and conduct, individually or with a small number of associates or assistants, under general administrative supervision but with latitude for the exercise of independent judgment, responsible investigations in silvics and silviculture and in related subjects. ASSISTANT SILVICULTURIST. Salary - $2,400. Duties - To assist in the work of silviculturists and associate silviculturists and to carry on minor investigations in silviculture under immediate or general supervision.

Applicants should at once apply for Form 2600, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C., or local representative. Applications must be on file with the Civil Service Commission at Washington, D. C., not later than May 17.

PAPER RESEARCH IN THE SOUTH

By Philip C. Wakeley,
Southern For. Exp. Sta.

Four years ago the Great Southern Lumber Company, of Bogalusa, La., at the insistence of the chemists of its paper mill, reluctantly squandered $8,000 on a small "operations" laboratory for routine tests connected with the manufacturing process. The routine tests have long since proved their worth, and this spring the company is completing a much larger laboratory for paper research. The idea of this new laboratory originated with the directors and higher officials of the company, and their willingness to spend the necessary $250,000 contrasts pleasantly with their grudging expenditure of a thirtieth of that amount four years ago.

The new laboratory building contains two chemical laboratories, a constant-humidity chamber, offices, and a library, besides the paper room, and the equipment includes a vibration-free microscope bench, a variety of digesters and beaters, and a 39-inch combination Fourdrinier-Yankee paper machine. The program of research has not been announced definitely, but it is understood that attention will be devoted to pulping southern hardwoods as well as to improving the sulphate process already successfully applied to southern pine.

The company already makes some 200 tons of container liner and kraft paper a day.

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SALT

By William S. Brown, Modoc.

So many years ago it is almost a memory, we induced local stock associations to pass a resolution requiring a certain number of pounds of salt per animal to be placed on the range, and after passing through the regular routine these resolutions became regulatory and mandatory. This worked out fine as a paper exhibit, but the stock in many instances still did not get the salt. Next, came a resolution that all permittees must purchase through their association the stipulated number of pounds of salt per head to salt their stock. This worked better. The salt was bought on bid and a low price secured, but we then found that the contractor selling the bid salt charged a much higher price to permittees for any extra salt they needed for stock on their ranches etc. so the next year permittees were urged to buy their entire year's supply of salt through the Association at one time.

By this time, the purchasing power of this cooperative plan of buying had assumed big proportions and there was a great deal of competition among dealers to secure the contract for furnishing the season's supply of salt. Schillings, of baking powder fame, sent a man up here to investigate salt conditions. We learned a lot about salt from him and, incidentally, found why a critter after consuming an apparent satisfying amount of salt was still "salt hungry", since a chemical analysis showed as high as 20% impurities or foreign substances in some of our salt. After that the bidders for salt were compelled to submit report of a laboratory test of their salt showing it to be at least 99% pure. Salt furnished the stockmen for 1927 tests 99.4% pure.

As the salt purchasing plan stands at present, grazing permittees secure practically all their salt for ranch and range through the cooperative buy. Sheepmen, dairymen, and stockmen using private range are also allowed to buy their salt through the Association in any quantity from 50 pounds to twenty tons. Payment is made to local banks direct by the stockmen to the credit of the Association concerned, the permittee usually paying his salt bill and grazing fee at the same time, the plan having also resulted in the greater percentage of grazing permittees remitting grazing fees through their bank, saving another old time source of annoyance and trouble.

At the time of writing this, salt of guaranteed purity test can be purchased for $3.70 or more per ton less through the cooperative plan than the individual can purchase for himself and the stockman can get his salt in blocks, 50# or 100# sacks, whichever he prefers. Dealers tell us that 30% to 50% more salt is being purchased by stockmen for the same number of stock than fifteen years ago, and this, too, of salt of guaranteed quality.

Possibly the above sounds rather formidable when considered by an already overworked Supervisor and his staff, but we have found here that it really reduces salt supervision and the greatest argument in favor of the scheme is that the stock are getting the salt - on the range. As one leading stockman puts it, "We must buy the salt, and we are not going to waste it." The Supervisor's office compiles the lists of the amount of salt for each permittee or stockman, for the bank, the contractor and theranger, sends out notices to the stockmen of amount due the Association, and okeys the contractor's bill.

It is real public service when you can ease the strain on the individual's most tender spot - his pocketbook - and the stockmen are not slow in showing their appreciation of this plan of service. The salt is distributed on our ranges by cooperatively hired riders under the rangers' instructions and supervision, but that is another story, which may be submitted later if the editor's good nature holds out through this one. (N.B. Should any Forest officer desire details on our cooperative salt buying plan, we will be glad to furnish them.)

THE ALASKA PULP SALES.

Bids were received for both units of pulpwood on the Tongass Forest which have been advertised for the last three months. One of the most satisfactory things about these bids is that they were made by thoroughly responsible parties, who are able to finance the costly projects of developing the water power and constructing paper mills. The sale in the Ketchikan region was bid in by I. and J. D. Zellerbach, who are officers of the Zellerbach Corporation, of San Francisco. This corporation is one of the largest wholesale dealers in paper on the Pacific Coast, and also manufactures paper. It has but one newsprint mill, however, that at Port Angeles, Wash., and wants to enlarge its newsprint productive capacity. The other sale, in the Juneau region, was bid in by George T. Cameron, President of the San Francisco Chronicle. Mr. Cameron states that he has associated with him, Mr. Harry Chandler, of the Los Angeles Times. These two newspapers are consuming about 60,000 tons of newsprint annually, and the enterprise has an assured market for the greater part of the product of the proposed mill in Alaska.

Although it will probably be five years before any paper is actually manufactured under either of these awards, they represent the culmination of 15 years' work by the Forest Service to get the newspaper industry extended to the Tongass Forest. To no small extent the receipt of these satisfactory bids is due to the personal work of B. F. Heintzleman, Assistant District Forester of District 8. He demonstrated his ability as a salesman by securing the interest not only of the companies which submitted bids, but of other companies as well. No one could listen to "Heintz" without having the fancied difficulties of logging and paper making in Alaska melt away and be replaced by a real appreciation of the opportunities there. Another man whose work has been effective and demonstrated to be sound is J. C. Dort, who during two hard, wet summers and falls, made a reconnaissance of the water powers on the Tongass Forest and then published his findings in effective form in a bulletin of the Federal Water Power Commission.

There were two bids for the Ketchikan Unit, one of which offered 90 cents per 100 cubic feet for spruce pulpwood and 30 cents per 100 cubic feet for hemlock. The other offered 80 cents per 100 cubic feet for spruce pulpwood and 40 cents for hemlock. Since the stands run about 75 per cent hemlock, the latter bid averaged the higher and was accepted On the Juneau Unit, Mr. Cameron bid the minimum advertised prices of 60 cents per 100 cubic feet for spruce pulpwood and 30 cents for hemlock.

A RESEARCH POLICY FOR THE SOUTHWEST

By the D-3 Annual Investigative Committee

Land in the National Forests may be divided into two broad classes, namely - timbered and non-timbered. On the timbered lands, the major crop, timber, must be protected, reproduced, and harvested; the minor crop, forage, utilized where this can be done in a manner that will give adequate protection to the timber and forage crop and to soil and watershed. It is now known that grazing as often practiced in the timber type has a very detrimental effect on reproduction. One preventive is to exclude all or certain kinds of grazing use, but the main problem is to determine if the forage in the sawtimber type can be utilized without undue damage to reproduction. If it can, such measures as will eliminate this damage should be put into effect. If not, then necessary measures for complete exclusion should be taken as rapidly as administrative and economic conditions permit.

On the non-timbered land the forage should be utilized, but in ways that will give full protection to watershed and soil values. With destruction of the vegetative cover by improper use serious and increasing soil loss results on both the non-timbered and timbered lands. This loss can be minimized by eliminating grazing, but research results are needed that will show how and in what amounts, etc., this forage can be utilized and still prevent undue loss of the basic resource, the soil.

Soil is the basic resource, and the better the land the better the quality and the larger the amount of crops produced. Erosion is causing an ever increasing loss, which can be greatly reduced by eliminating improper harvesting of the crops grown. The need to protect and increase the producing power of soil is pressing. Given a certain kind of soil, there is no chance, of course, to change to another kind, but different soils behave differently. They require different treatment. One class may stand considerable abuse without deterioration; another may be very susceptible to damage. It is known that reproduction is more easily secured on a light sandy or granite soil than on an adobe soil. It is desirable to emphasize the need for research projects to be planned and results interpreted in the light of the broad soil classifications found in this region and to determine how best to utilize the maximum producing power of the various soils and at the same time build up their producing capacity. This is but one element in the entire problem.

In administering the National Forests, the resources must be used and the objectives for which the Forests were created reached at the earliest possible time.

FINE DENS FOR FOXES
AND STRONG BACKS FOR FIRE FIGHTING

By Leo A. Isaac,
Pacific Northwest For. Exp. Sta.

The Official Record for February 23, 1927, tells us that the Biological Survey and the Bureau of Public Roads have designed a practical den and pen for foxes and that blue prints are available for distribution. A later issue announces competitive examinations for mechanical engineers to be employed by the Department of Agriculture to improve old and design new and more efficient farm machinery. Why shouldn't the Forest Service follow the example set by the other bureaus.

Nowhere do we find a man or a dollar definitely assigned to the task of designing new and better equipment and machinery for protecting against fire that vast wealth of the Government represented in the National Forests.

Would it not be possible and practical for the Forest Service as a whole to have a unit with the necessary men and funds assigned definitely to the task of improving our fire fighting equipment and machinery, instead of waiting years for some iron works to develop a better fire pump or for some powder company to show us how to use explosives in fire fighting?

It is true that members of the Forest Service have made several important inventions to aid the firefighter. These are set forth in an article by H. T. Gisborne in the May 1926 issue of American Forests and Forest Life. However most of these were done in the course of the day's work and not by men and money definitely assigned to the job.

APPLE BOXES AND FORESTERS

By G. E. Mitchell, Chelan.

When reading the Wenatchee Daily World the other day, I ran across an item stating that over 16,000 cars of apples were shipped through that city this season. The thought was suggested - How much lumber is needed to make the boxes used this year?

Assuming the number to be 15,500 cars, then there would be 11,625,000 boxes figured on a basis of 750 boxes per car.

Manufacturers claim that it takes 5 b. f. of lumber to make an apple box. On this basis it required 58,125,000 ft. of lumber to ship the 1925 crop from Wenatchee. It is safe to say that an additional 10% was used in the orchards, local sales and breakage. Therefore, 63,937,000 ft. b. m. of good pine and spruce lumber was required to handle the crop.

These figures added to those of the Yakima, Walla Walla, and Spokane districts and the total coupled with the lumber exports of Washington lead one to believe that if we are to maintain an adequate lumber supply for the United States, something besides reorestation methods must be done. It would seem that now is the time to curtail lumber exports and regulate cutting on private holdings and use our present forests for home consumption.

A PAPER MAKING OPPORTUNITY IN WYOMING

By John W. Spencer, D. 2

District Two has a difficult utilization problem in the lodgepole type on the Medicine Bow and adjacent Forests. Railroad ties are being produced in large quantities for the use of the Union Pacific Railroad. However, the region is sparsely settled and markets for products other than ties are decidedly limited. Sale contracts cover both ties and sawlog material. The sawlogs are sawed into ties but the side lumber is largely unmarketable. Ties can not be made from material smaller than 8½ to 9" in diameter at the small end. As a result a tremendous amount of top material is wasted. The amount which can be sold for mine props, posts, etc., is inconsequential.

The District has made studies which indicate that a paper mill located at or near Laramie, Wyoming, would be a feasible proposition. The amount of green National Forest timber within easy reach of Laramie is in excess of 4½ billion feet. This timber is 74% lodgepole pine, 22% Engelmann spruce, and 4% alpine fir. On a sustained yield basis over 68,000 cords of pulpwood, including tops, could be secured annually from material that is unsuitable for ties. All of this could be easily and cheaply taken to a plant near Laramie. Abundant supplies of cheap coal, water, limestone and Bentonite are available and transportation facilities are excellent.

District Two got out a questionnaire to all newspaper publishers in Colorado and Wyoming, and has found that this region is using nearly 50,000 tons of newsprint annually. All in all there seems to be no reason why the Rocky Mountain District can't meet its oun paper demands.

At any rate, the District has just completed a prospectus describing the proposition. It is hoped that some paper manufacturer can be induced to come out and go into the matter on the ground.

If the proposed plant materializes it will solve the lodgepole utilization problem on the Medicine Bow and Colorado Forests, and may pave the way for similar plants in other Districts.

PRESERVATION OF NATURAL AREAS

At the Third Pan Pacific Science Congress held under the auspices of the National Research Council of Japan from October 18 to November 19, 1926, various resolutions were adopted. One of these provided for the preservation of natural areas in the Pacific region. The resolution reads as follows:

Preservation of Natural Areas in the Pacific Region.

1. That this Congress strongly recommends the preservation of natural areas of the Pacific region.

2. That this Congress suggests that the countries of the Pacific region be asked to take adequate steps for the preservation of:

a. Original flora and fauna that are rare and at the same time of scientific interest, especially those containing endemic species.

b. Those species of plants and animals that are especially interesting from the standpoint of geographical distributions.

c. Remarkable geological and mineralogical structures and formations.

3. That this Congress also strongly recommends that particular attention be given to the preservation of the flora and fauna of the islands of the Pacific Ocean as very important problems regarding the origin and distribution of plants and animals in this region are still the subject of investigations.

This resolution is directly in line with the thought of foresters in this country where the desirability of preserving from all use small areas to be kept in a natural condition is quite generally accepted. - E.N.M. and E.A.S.

AIDING JUSTICE

Wood technologists of the Forest Products Laboratory, with a record of having assisted in the conviction several years ago of a parcel-post bomb murderer, recently aided justice by vindicating a suspect in an alcohol theft. Thieves bored several holes in the door of a storeroom in the chemistry building of the state university, unfastened the latch, and made off with a considerable quantity of alcohol. Afterward university officials submitted an auger bit with borings still clinging to it to the office of wood identification of the Federal laboratory along with samples of wood from the broken door. On identification under the microscope the door samples proved to be birch and the borings maple, so that the user of the bit was absolved of guilt.- Forest Products Laboratory News Note.

POTENTIAL GOLCONDAS VERSUS RAILROAD GRANTS.

By L. F. Kneipp, Washington.

The Central Pacific Railroad land grant acts of July 1, 1862, and July 2, 1864 apply only to non-mineral lands, but it does not appear that in earlier years each specific selection was carefully studied to determine whether it contained mineral values. In any event many of the Railroad deeds of conveyance contained reservations to the company of all mineral rights in the conveyed lands, which naturally raised the query of "how come?" since land which contained mineral values was not legally subject to selection under the grant.

A great deal of the Central Pacific grant is within the National Forests of District 5 and the Argus-eyed guardians of that delectable region decided to give all future railroad lists at least the "once-over". Lou Barrett functioned as cheer leader, while Olie Friedhoff, after tracing each selection to its lair, went through the process of spitting on pieces of the rock, rubbing them on his pants, and deciding whether the obvious indications of mineralization justified a reasonably prudent man in investing his time and money, etc. In many cases they did, which meant that the lands were not properly selectable under the grant. In such cases protests would be in order.

After checking up on Friedhoff's work, the railroad decided that the solution of the problem lay in joint studies and agreements. These have resulted in the execution of special stipulations in which the railroad has agreed that certain of the lands it had listed are mineral and the Forest Service has agreed that other listed lands should be "no-protested." To date, the acreage thus released by the railroad amounts to about 13,120 acres.

It might be argued that since the land is subject to mineral appropriation its retention means nothing to the National Forests, but the fact remains that the laws are being enforced and that until such time as the land is appropriated it will continue available for the production of timber, the protection of watersheds and other forms of public use.

Friedhoff's method of examining the selections has been to make preliminary studies of the areas listed to get a general idea of the mineral conditions and geology and a few samples from the ledges, without making the detailed survey and examination required by the Interior Department. The results are then put up to the railroad. After eliminating the subdivisions which the company concedes to be mineral, Friedhoff makes the detailed examination of the remaining subdivisions believed to be mineral in character and prepares the cases for hearing. This system saves the Government considerable expense as it eliminates the need for detailed examinations of lands which the company later admits to be mineral in character.

ILLICK NAMED STATE FORESTER OF PENNSYLVANIA

The appointment of Joseph S. Illick as State Forester of Pennsylvania and Deputy Secretary of the State Department of Forests and Waters was announced a few days ago by Secretary Charles E. Dorworth. The appointment became effective April 16.

The new State Forester will soon complete twenty years of service in the Forestry Department of Pennsylvania. In 1907 he became an instructor at the State Forest School at Mont Alto. He served there in the capacity of Professor of Forestry and Acting Director until 1919. During the last eight years he has been Chief of Forest Information and Director of Forest Research for Pennsylvania.

Mr. Illick is the author of 12 books on trees and forestry, and has contributed more than 100 special articles on forestry and other outdoor subjects to periodicals. His best known publication is "Pennsylvania Trees" which has already gone through five editions totalling 45,000 copies. Among his other publications are "Tree Habits" and "Guide to Forestry." He is a Senior Member of the Society of American Forestry, a member of the Council of the Pennsylvania Forestry Association, and a Fellow in the American Association for the Advancement of Science. - Pa. Dept. News Letter.

CHRISTMAS TREES AS OTHERS SEE US

"Strangely enough, too, one finds many Forest Rangers these days who are working in direct opposition to what one would, at first glance, call conservation - men who smile happily when a person mentions Christmas trees and assures the speaker that there's nothing finer in the world than a pretty tree well decorated for the yuletide. The sentimental might look upon such an attitude as sacrilege; are not Forest Rangers paid to protect all trees? To which the Ranger replies with a grin that they certainly are, and that there's no finer protection than the generous use of Christmas greenery - provided, of course, that it is taken from the proper place.

"Don't go up Willow Grouse way for your tree this year, said the Ranger recently as I talked of greenery. That district is just in the right shape. Go over the hill about a mile and cut there.

"All of which means that, district by district, in the mountains, many Rangers now are using Christmas-tree enthusiasts as a balance of nature. When they find a region in which are many young trees, too many, in fact, to allow any of them to mature into merchantable timber or even good mountain greenery, that district is marked for sensible, carefully directed Christmas-tree slaughter. The word goes forth, especially to the commercial handlers of trees. The district is thinned systematically by men, often hired by the Ranger, who carefully tag the tree, thus giving it free passage along the mountain roads to the cities. Load after load goes out, perhaps to be halted upon a lonely stretch of road by a sheriff or mounted policeman, an inspection made for the tag which denotes its legitimacy, and the journey allowed to proceed.

"But when a truck appears without that necessary tag someone goes to jail.

It is a worthwhile system; it keeps alive a pretty tradition, allows children to continue to believe in Santa Claus, thins growing stretches of evergreen that otherwise might be killed by self-stagnation, and keeps the larger growths clear of marauding agencies". - By Courtney Ryley Cooper of Idaho Springs, Colorado, in the Saturday Evening Post.

QUOTING A LAW THEY RESPECT

In a region noted more for woods burning and for firm religious convictions than for warm support of new-fangled forestry laws, J. K. Johnson, forester for the Great Southern Lumber Company, has used the following milepost slogans along a Louisiana State highway:

Read Joel 1: 18-20

Read Exodus 22: 6

and finally as a warning to trespassers:

Read Deut. 27: 17

The signs "get people coming and going" since those who do not recognize the verses from the numbers usually succumb to curiosity and look them up. - P. C. Wakeley, Southern For. Exp. Sta.

Joel 1: 19-20 - "O Lord, to thee will I cry : for the fire hath devoured the pastures of the wilderness, and the flame hath burned all the trees of the field.

"The beasts of the field cry also unto thee: for the rivers of waters are dried up, and the fire hath devoured the pastures of the wilderness."

Exodus 22: 6 - "If a fire break out, and catch in thorns, so that the stacks of corn, or the standing corn, or the field, be consumed therewith; he that kindled the fire shall surly make restitution."

Both these quotations were used in the Forest Service film "Trees of Righteousness", released a year ago for use in Arkansas. One of our boosters reports that after seeing this film they don't dare burn the woods. We hope he's right. - Ed.

WILD PIGEONS

By Frank P. Cunningham, Sequoia

Considerable interest has been evinced in wild pigeons during the last few years on account of their noticeable increase. This recovery of a greatly reduced species has been of special significance for a number of reasons.

The natural increase of the birds is small, the female seldom laying more than one egg a year. The natural increase is therefore not greater than that of big game animals, deer, antelope and elk, as compared to ten or more for quail and eight for ducks. With unlimited hunting for over 50 years it is a great wonder the species was not entirely exterminated prior to its complete protection beginning in 1916. It is gratifying to note there is no longer fear for their extinction, yet it is doubted if the time is in sight that hunting should again be permitted.

The band-tailed pigeon is a migratory bird and is found during the summer months throughout the Western States and well into Canada. Those from Washington, Oregon, and British Columbia winter in California. They are usually found in the oak belt where they gather in large numbers in the fall and feed on acorns, showing the amazing ability of swallowing them whole. Due to their flocking habits and their roving nature it often seems that their numbers are greatly in excess of what they actually are. Large numbers may be seen on one Forest and a few days later will be gone to reappear on another where they will be in evidence in equal numbers. It must be remembered that these seemingly large numbers represent the entire pigeon population of the Pacific States and British Columbia.

During the winter, truck farmers in the coastal counties about San Francisco Bay experience considerable damage to their crops from the heavy concentration of these birds in the area and no doubt within the next few years a concerted effort will be made to secure an open season in order to reduce their numbers, so as to protect crops.

It is fortunate that these birds come under the migratory bird treaty act which gives them full protection for a 15-year period ending in 1931, and it will be difficult if not impossible to secure a revision of this act prior to that time. It is possible that complete protection may be continued after that time. -From D. 5 News Letter.

DURABILITY OF TELEPHONE POLES

Ranger Flake submits the following interesting information bearing on the durability of aspen telephone poles: These poles were given an open tank treatment of creosote at the local Santa Fe tie plant and set in the ground during the spring of 1911. After 15 years of service, there are still

36½% - 86 poles - sound and not stubbed.
58½% - 138 " - have been stubbed. 13 of these had rotted off completely.
4% - 10 " - struck by lightning. 7 had to be replaced.
1% - 2 " - damaged by woodpeckers. To be replaced.

100% 236 poles.

The rotting of the poles has occurred at or near ground surface, whereas six inches below the ground the poles are sound. All the poles were badly checked, cracks extending from top to butt, 1/2 to 1 inch deep. -From Manzans Ranger."

HOW THE BASCO OUTWITS THE COYOTE

By J. N. Langworthy, Shoshone

Among the Shoshone sheep herders are found a good many Basques, or Bascos as they are known locally. They come from the French and Spanish Pyrenees, representing the Iberian or pre-Aryan people of Spain. The language of the Basques is an unclassified speech.

From earliest childhood they assist in the care of sheep. One of their practices appealed to me as being worthy of mention in the Bulletin.

One night last spring I camped near a lambing band and noticed one of the herders preparing flares to scare away the coyotes. He used Carnation milk cans, large size. The cover was cut around with a can opener and tilted to protect the contents against rain.

The can was filled with a mixture of sulphur 7 parts, black blasting powder 1 part. Two matches were stuck into the mixture, heads level with the surface. A little powder was placed around the match heads. A can was placed near each band, after they had bedded down, and after dark the herder lighted the matches. A can should burn all night if mixed right. If it burns too quickly the amount of powder should be reduced. It smoulders with a strong sulphur smell with an occasional flash of the powder.

Later in the season I talked with the owner of the sheep. He said that he lambed 3272 ewes and docked 3401 lambs. He only knew of 3 lambs killed by coyotes and these were in a bunch which strayed. Before he used the flares his losses had been from 150 to 200.

Last spring he used 200# of sulphur and 3 kegs of powder. The sulphur cost $7.00 per cwt., the powder $4.50 per keg in Cody. -From D. 4 News Letter.

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FLOOD PREVENTION PLANS SHOULD INCLUDE REFORESTATION AND CONTROL OF SOIL EROSION

The greatest flood disaster this country has ever known is bringing a realization of the need for a well established policy of flood prevention, says a press release prepared by the Forest Service and the Bureau of Soils in calling attention to two important factors in the control of the rapid run-off of water--reforestation and the reduction of soil erosion. The importance of forests in this respect has long been emphasized, but until recently very little attention has been given to the effect of the continued destructive washing of large areas of cultivated farm land and pasture lands. If proper attention were given to reforesting rough lands unsuited to agriculture, to maintaining good forest cover at the headwaters of rivers, and to the prevention of rapid run-off on all sloping farm lands, the department believes the problem of flood control would be less difficult.

"Reforestation and forest protection," points out Mr. Sherman, "will unquestionably enter into any plan for the future control of the Mississippi. Claims that the present flood is due to forest destruction or claims that reforestation has no bearing upon flood prevention are both exaggerations. Every acre of land in the immense catchment basin of the Mississippi system contributes, in one form or another, at one time or another, to the flood problem. It is idle to say the scores of millions of acres of forest land within this basin have no relation to the flood problem. The plans for preventing a recurrence of a flood of this magnitude must, as one of their essential factors, include the reforestation of the headwaters of the Mississippi and its tributaries."

"Failure to hold the absorptive surface soil of fields and pastures against the denudation of erosion," says H. H. Bennett of the Bureau of Soils, "has contributed to a much more rapid removal of the water that falls upon these eroded lands. The mellow top soil that is gone was far more retentive of moisture than the comparatively impervious subsoil that sheet erosion has left behind." Mr. Bennett believes this wastage of the soil has as much to do with the constantly increasing floods as all other factors. He says that many streams, navigable a generation ago, are now clogged with soil debris. He gives as examples of such clogged rivers the Coldwater and Tallahatchie of northern Mississippi and says that "failure to build terraces on sloping fields generally and to plant grass and trees on the steeper lands highly susceptible to rain wash, accounts for much of the excess of water now sweeping down the Mississippi, and that if this kind of soil wastage on an enormous scale is not stopped, there is little likelihold that floods will be controlled."

Practically nothing Mr. Bennett tells

us is being done about this phase of flood prevention. There are no hillside terraces north of the Arkansas River, Eighteen inches of top soil has been removed from the youthful fields in some parts of northeastern Kansas. The entire top soil is gone from hundreds of thousands of acres in western Virginia, western Pennsylvania, eastern Kentucky and southeastern Ohio. From these lands rain water courses much faster to the Mississippi than formerly. Terraces and grass woodlots, forests, and other soil-binding and soil-building crops will vastly improve the flood situation; not only will they slow up the run-off of water, but they will save the most valuable part of the soil and will reduce the clogging of streams which cuts down their carrying capacity, and adds to the flood danger."

In continuing his statement on the forests as a flood factor, Mr. Sherman said: "Although excessive precipitation in the main basin of the Mississippi is a major cause of the present flood, many of its tributaries have contributed their own floods. Extensive deforestation on the head waters of innumerable feeder streams is partly responsible for rapid melting of snow and for the rapid run-off of snow water and rainfall. Deforestation, accompanied by repeated fires, has likewise encouraged erosion of the soil. These effects are particularly pronounced in hilly and mountainous country where cutover land is not extensively reclaimed for agriculture, and where repeated fires have progressively denuded the soil.

"In making comprehensive plans it will be necessary in my opinion, to consider forests as affecting run-off, snow melting, surface erosion, channel cutting, and silting. Extensive reforestation in the long run by retarding the run-off, will supplement the artificial engineering work. Every dollar expended in reforesting denuded land will return with interest through the sale of forest products and water power and stimulation of industry. Flood prevention will come as a by-product without actual cost.

"In at least one region the present flood has raised the question whether the reclamation of bottom lands has not gone too far. Efforts are now under way for a bond issue to purchase bottom lands along the Illinois River, a tributary of the Mississippi, in order that the overflow lands may be restored to their original function. Conservation agencies point out that this land has a great additional value for timber growing and game breeding, which, with reduced flood control costs, would tend to offset the loss of agricultural value."

The particular flood prevention recommendations of the Department of Agriculture may be summed up briefly as follows: The general reduction of soil erosion to prevent rapid run-off and the clogging of streams; largely increased efforts by the States and Federal Government and private owners for co-operative forest fire control; largely increased programs for public forests on tributary headwaters both by the Federal and State Governments; a much larger program of tree planting on denuded forest lands; encouragement of farmers and other land owners, through State and Federal aid, to plant trees on rough lands and along water courses; and a study of the possibilities of restoring some of the bottom lands to their original condition as carriers of flood waters and producers of forests and game.

MORE FOREST RANGERS AND GUARDS FOR DISTRICT ONE

More than one hundred additional guards for the protection of the National Forests of Montana and North Idaho during the coming fire season have been authorized by Col. Greeley, following conferences held at Missoula, Kalispell, and Coeur d'Alene during the first part of April.

The decision to strengthen fire-control forces, is largely due to the disastrous season of 1926, when severe lightning storms, coupled with unusual drouth and winds, created a situation with which local officials were unable to cope, largely for lack of sufficient guards stationed in the Forests beforehand, trained and ready to strike.

The new program involves ten additional yearlong Rangers and one hundred additional guards. These will be placed on the most dangerous fire Forests. The plan also provides for putting all guards on earlier, and requires more thorough training for fire duty, not only of the regular Rangers and guards but of the men employed on trail crews within the Forests, of whom there will be about 1250.

With these increases in personnel, the number of regular guards in the District will, in round numbers, total 800. Placing them on the job a week or more earlier than formerly will make it possible to give all men more thorough training in advance of the fire season. Part of this training is done at training camps, but it is also essential to have additional time to train each lookout and guard on the particular job he is to fill, in order to familiarize him with the topography of his district, trails, telephones, and places of special fire danger. This training work is to be followed up throughout the season just as far as time from actual fire suppression is available, and it is largely for this purpose and for supervision of the increased protection forces that the ten additional yearlong Rangers will be assigned.

Of the 1250 men in trail crews, it has been possible heretofore to train only about 15 per cent for special fire duty such as the guards have to do. Under the new program and the increased allotment of funds, it is planned to give special training to 40 per cent of the men in these crews, and this will have the effect of increasing the number of men available for fire emergencies by about 300 men. Special efforts are to be made everywhere in recruiting for trail crews to secure men of the best type and experience for guards.

With this program for increased man power, it is planned to increase equipment such as fire trucks, plows, trenches, horses, torches, and hand tools of all kinds. - District 1.

ARE WE QUALIFIED LIVESTOCK MEN? YES? NO?

By John H. Hatton, D-2.

The usually short summer period that livestock, especially sheep, spend on National Forests by no means tells the story of the average livestock operation. I should say, in general, it is no more of the story than is expressed by the relative period of time the stock are on the Forests and on the ranches and outside ranges. For sheep, therefore, National Forest use gives us about one-fourth of the year-round picture, and for cattle not to exceed one-half - usually less.

Our permittees' qualifications, as far as the allotment of ranges goes, are in the main outlined and determined by the answers to the questionnaires on the application forms. Personal acquaintance and contact with permittees and their holdings furnish many Forest Officers additional means of checking on the year-round operation; if not specifically, at least generally or in the abstract, but attendance at a roundup, a stockmen's convention, the exchange of stories over the campfire or an evening at cards at the summer cow camp, unless we are naturally interested in sheep or cattle, do not generally increase materially our detailed livestock information.

I think perhaps we do not improve as much as we could or should our opportunities to form more personal contacts with that part of the year-round operation which is outside the Forests. I mean the opportunities we have to discuss, observe and record the detailed phases of the stockman's intimate problem, and especially of those stockmen who may live a little apart from our regular routes of travel, who may be dangerously near or beyond the border line of that "dependency zone" we are about to put in bold color on the Forest map. It would not require a great deal of specific planning or effort to do this, and I am sure it would be time well and profitably spent, both for us and our permittees. We think of the grazing administration as offering perhaps the widest field in National Forest activities for human contacts and business relations, because of the broad application of grazing uses to the Forests generally. We have opportunities more than we have so far improved, I am sure, to get closer to the intimate and essential factors which enter into the successful and permanent operation. By improving such opportunities more, and by recording the best information and practices, we add to our experience, our range management efficiency, our sense of the proper relation of forest resources, and we can take up more authoritatively the poor and good practices of our respective communities.

Perhaps some of our worries and problems in commensurability standards, dependency zones and other more recent refinements in our grazing regulations will be more easily solved if we get a little closer to the essential business detail and aspects of the various seasonal factors in our livestock operations. I'm sure it would reduce any tendancy we might have toward unnecessarily burdensome decisions or restrictions, and would add to our human interest in a large resource and an important industry.

FORAGE CONDITIONS POOR FOR DEER IN KAIBAB FOREST

A brief winter investigation of conditions affecting the deer on the Kaibab National Forest has just been completed, in continuation of studies of the Kaibab deer problem that have been in progress since 1922 under the direction of the Biological Survey, in cooperation with the Forest Service, and the National Park Service of the Department of the Interior. The present investigation indicates that on account of the overgrazed condition of their range the deer are forced to feed largely on sagebrush and juniper.

On the winter range on the eastern side of the Kaibab Plateau the deer seemed to be in fairly good condition, but on the western side, where there is a greater concentration of the animals, they were found much emaciated. Within a comparatively small area the carcasses of 23 deer were found, most of which had died of starvation, though some might have been killed by predatory animals. A large number of fawns known to have been born last summer have already died of starvation, and this probably accounts in some measure for the lack of increase in the herds during the year.

The investigations have revealed that there are more deer on the range than the available forage will support and that unless many of the animals are removed the greater part of the feed there will be killed out. The deer are now concentrated on the winter ranges along the basal slopes of the Kaibab Plateau, the higher part of which at this season is deeply covered with snow.

After the creation in 1906 of the Grand Canyon Game Preserve, which has boundaries nearly identical with those of the Kaibab National Forest, no killing of the deer was permitted there until 1924, when a few hundred were removed in this way. They were further protected through the killing of large numbers of the predatory animals that formerly tended to check their increase. From a comparatively small number in 1906, perhaps 3,000, the deer increased until in 1922 when it was estimated there were 20,000, perhaps a fourth or a third of which ranged in summer on the Grand Canyon National Park. In the summer of 1924, a committee appointed by the Secretary of Agriculture to study the problem of dealing with the surplus estimated the number at 30,000, a total that some of the Government experts and local residents believed conservative.

This great increase over the original numbers of deer has led to the over-utilization and destruction of forage at the present time. Legal complications concerning jurisdiction have thus far prevented carrying out plans initiated by the Forest Service for hunting on a large scale. Even if there should be a material reduction in the numbers of the deer, however, it would take many years, according to the investigators, to restore the full forage-producing capacity of both summer and winter ranges. A few hundred of the deer are killed each autumn under the State law, whereas officials of the Department of Agriculture recommend that thousands be removed in order to prevent the destruction of the forage for all that would support reasonable numbers. This destruction has now progressed until all forest reproduction is threatened.

TIMBER RECEIPTS, F. Y. 1927.

Returns are in for three-quarters of the fiscal year. At first glance it looks as if the howls of calamity from the lumber industry are not reflected in National Forest timber business. Our timber receipts are larger than for the same period last year - but only by $29,403, or 1.3 per cent. Again, Districts 6 and 5, where conditions in the lumber industry are supposed to be worst, show increases over last year - but if they did not, we would be way in the red, for Districts 1, 2, 3, 4 and 8 show decreases of from 13 per cent (D-2) to 35 per cent (D-4), and D-7, with a small increase for the nine months, had a decrease of 32 per cent for the third quarter taken by itself.

The condition in the industry may be reflected in the failure of timber receipts to increase, compared with those of last fiscal year. Another factor is the extent to which low-priced stumpage, such as fire-killed timber in D-1 and chestnut acidwood in D-7, is being cut. The volume of the cut seems to be holding up well. The price is not. Thus we echo the industry. - E. E. C.

MEMORY TESTS ON SQUIRRELS

Do squirrels remember where they hide nuts? Or can they smell a nut hidden in the ground? Or do they sometimes just dig around and find something by chance, because so many squirrels have buried so many nuts in the squirrel neighborhood?

This squirrel puzzle is a live topic among naturalists.

The story of a red squirrel that buried nine nuts in the snow on a house balcony, and that came next day and carefully dug up the nine nuts, one by one, even though a new fall of snow complicated the problem, is told by Dr. A. Brookes Klugh, of Cornell University, in a report to the forthcoming issue of THE JOURNAL OF MAMMALOGY. This incident, Dr. Klugh says, is proof of the red squirrel's remarkably strong memory for location. In many cases there is a possibility that the sense of smell may help a squirrel to find hidden objects, he adds, but this time such assistance seems to be out of the question

Dr. Klugh has studied red squirrels for eight years, and has watched individual squirrels over periods as long as two years. He says: "Time after time I have seen a squirrel go by the nearest route to something it has stored. take it out, and eat it."

Observations indicating that squirrels do not "smell out" buried nuts have been made by L.R.Dice, of the University of Michigan and described in the same journal. A fox squirrel, which came regularly to be fed, was observed over a period of several months. The squirrel was fed in a shallow box on the house porch, and Mr. Dice filled it with sand and buried a number of nuts under the sand. The squirrel came frequently to the box to eat nuts which were left for it on top of the sand. It sometimes dug around in the sand and if a nut were partially buried with one end sticking up in sight, the squirrel would be likely to find it. But it never discovered a single completely buried nut. If no walnuts were in sight, it would hunt about, and leave without its dinner.

"If squirrels do not find buried nuts by the use of the sense of smell," he states, "the presumption would be that they remember the place where they have buried each nut that they find. This would require a well-developed memory, though not necessarily a perfect memory, for squirrels undoubtedly fail to find many nuts they have buried." - From SCIENCE (Issue of March 11, 1927)

EGGS OF FRESHWATER SMELT TO BE SHIPPED

An interesting experiment is to be

carried out by the Bureau of Fisheries, Idaho State Fish Commissioner, and Forest Service in shipping the eggs of the freshwater smelt from eastern Maine for planting in Idaho waters.

This little fish, ordinarily growing to about six inches long, is remarkably prolific and runs in large schools in the deep waters of lakes. In early spring they ascend inlets to spawn, the spawn being very minute and sticking to rocks, sticks, etc. The eggs develop rapidly and hatch in from two weeks to a month, the minute young migrating immediately to deep water.

Owing to the rapid development of the eggs, it is difficult to ship them successfully such long distances. The eggs are to be surrounded by a layer of ice and packed in an insulated box to be sent by express. If this method is not successful, a small shipment by air mail will be attempted.

The object in introducing the smelt is to furnish an abundant and suitable forage fish for trout and salmon to eat. They live principally on minute forms of life which ordinarily occur in abundance in deep water lakes and turn this into a readily available trout food. In one instance, a lake in which trout were not thriving, owing to a lack of large forms of food, although the minute forms were abundant, was stocked with the smelt in the spring and that fall yearling steelhead trout and landlocked salmon from 6-9 inches long were planted. By the following summer, 8-9 months later and over winter, the trout and salmon reached two pounds in weight. The next summer steelhead trout were taken weighing 4½ lbs., the food being almost entirely the little smelt.

The smelt is the natural food of the landlocked salmon which has never been successfully established in its absence and although encouraging results have come from the introduction of this salmon in the Redfish Lake section in Idaho, the planting of the smelt will make favorable results much more certain. The abundance of trout food which the smelt will supply should improve conditions for other trout as well and it is quite probable that the little redfish occurring there will grow considerably larger in size than at present. - D-4. Daily News.

A MOBILITY EXPERT

Supervisor F. V. Horton was transferred on April 1 from the Umatilla to the Columbia Forest. He had previously served on the Siuslaw, Kaniksu, Wenaha, Deschutes and Crater. He refers to article on Mobility in the Service Bulletin of October 20, 1924, and says "I have no desire to re-open an old discussion, but a qualified expert is always allowed to testify, provided, of course, that he can qualify.

"Well, here's where I qualify as an expert on 'mobility'. Since this last move, the wife, who is statistically inclined, points out to me rather forcibly that this is the eleventh house we have lived in since SHE joined the Service nine years ago. I admit our bank account is still three moves behind us, and that the offspring doesn't know whether she is A Class second grade or B Class first grade, and I further admit that I sometimes give my address two moves back, and that our silver is still one move back, and that our furniture is now all antique in appearance.

Admitting all this, I still maintain that mobility in the Service is desirable, practical (and darn possible).

The family, by the way, is in such a state of mobilization that I sometimes feel that its component parts might safely be checked at the counter with the umbrella and hand luggage. - District 6.

"HINTS FOR FARM AND HOME," A NEW FEATURE SERVICE

The Branch of Public Relations of the Forest Service, through its Press service, has undertaken the job of furnishing to the Associated Press, one of the leading wire news services of the country, a weekly batch of short items on forestry topics to be used in a column sent out by the A. P. under the heading of "Hints for Farm and Home." This column has been started by the A. P. as a part of its newly launched weekly farm feature service, which is to be made up of timely articles, etc., on agricultural subjects, mainly gleaned from the Department of Agriculture. In addition to the "Hints" furnished by the Forest Service, the Associated Press man in charge of the new farm feature service also prepared two longer articles which were sent out this week, one on the Grazing Research herbarium and one on the Forest Service Air Patrol.

The Superintendent of the Washington office of the Associated Press says the farm feature service is being supplied to about 1,000 daily papers and that it appears to be very popular. Public Relations considers it an excellent opportunity to put over pertinent news items on farm forestry, grazing or kindred subjects, and is anxious to have all the material it can get suitable either for short turns, or longer articles from the various Forest Service workers. - C. E. R.

BRING ON YOUR SEQUOIAS

Notes on obstructions to navigation, issued early in February by the local branch of the U. S. Hydrographic Office at New Orleans, mentioned, with latitudes and longitudes, two "large tree trunks, about 75 feet in diameter", floating in the Gulf. These presumably drifted down some southern river, and of course came from unmanaged stands. What fine special purpose timber we can produce with proper thinnings! - P. C. W., Southern For. Exp. Sta.

SPRUCE SEEDLINGS SOLD ON BLACK HILLS

The quarterly report of timber cut from the Black Hills Forest shows that over $500 worth of spruce seedlings have been sold. This is new business and is another example of what can be done in increasing sales of minor products.

"A FOOL THERE WAS"

"A fool there was," and he drove a "jit"
"Even as you and I."
He loaded his folks and his camp outfit
And sought out the mountains high.
He found him a place that looked right nice
Where the grass was green and the waters iced,
Where the songbirds sang and the stately trees
Hummed a sleepy tune in the summer breeze.
He made his camp and he fished the creek
While his kiddies played in the shade
Cleansing their bodies and rinsing their souls
In a Paradise God had made.

A restful stay for a couple of days
Then the open road and away
Leaving behind in the timber's shade
The rubbish and trash his camp had made.
"It doesn't look nice, but what the hell
We never expect to come back again."
So he drives away, and a slumbering spark
Glowed bright that night in a forest dark
When the wind stirred the ashes gray.

Yea, he was a fool--this tourist gay
And he might have been you or I
But he never will make that camp again
No matter how far he drives.
For the stately trees and the sparkling pool,
The carpet of grass that was clean and cool
Has been seared by the hand of a careless fool.
That might have been you or I.
For that slumbering spark in the ashes gray
Was a roaring Hell at the dawn next day,
While the fool drove away o'er the mountain's crest
In his jitney tour of the Golden West.
--Sam F. Keifer, Yakima, Wash.

(Clipped From "The Wooden Nutmeg".

HERE'S A NEW THOUGHT.

At the present day there are far more human beings on the earth than there ever were before. Each one of us represents the forcible displacement and suppression of our equivalent in life of other types, the normal primitive predators upon the plants by which we live. The grasses are our most important crops. The grasses are the normal and the usual food of most of the hoofed animals, and of many rodents. These we have killed off and we flourish in their place.

Our existence at the expense of the hoofed animals, the rabbits, rats and mice, and similar other creatures, is nearing the saturation point; we are beginning keenly to feel the competition of the insects. Our further increase in the not distant future will be measured by the success we may attain in the displacement of the insects from their normal food which we shall ourselves consume.

Our future increase is dependent on the ability we may show to cut deeper and deeper into the ranks of those plant-feeding things that are competing with us for our food supply. The ability of our grandchildren to live will be measured by their ability to suppress their equivalent in insects. - Austin H. Clark, Smithsonian Institution.

MOUNTAINEER BREEZES FROM MANZANO RANGER

Telling the public is O.K. sometimes at least. Last week I wired station K F K D. at Milford, Kansas, and told the announcer that an invitation was extended to himself and his listeners to spend their vacation in these mountains, stating that all we ask in return is that they treat the forests properly and be very careful with fire. The telegram was read with comments and then I was informed that since it happened to be the first telegram from the State, a nice box of chocolates is due me. Think of it! Chocolates for telling the public to be careful with fire.

Much publicity has been given in recent months to "secret methods" for dyeing the wood of living trees. A well known forester writes as follows: "There is much ado about nothing over this thing. The same principle is used in every botanical laboratory where physiology is taught and you see it applied on March 17 to carnations. The original statement in the Scientific Press was a simple 2 line affair - Popular Writers in Popular Science, etc. have used it for months. As far as the method goes, it has been and is being used in studying growth by the Carnegie Institute, and has been for some ten years to my knowledge."

INCREASE IN PRESERVATIVE TREATMENT OF TIES

Only 21 percent of the railway ties purchased in 1911 were given preservative treatment, says the American Wood Preservers' Association. In 1923 the proportion had risen to 39.5 per cent and in 1925 it was 56.2 per cent. As late as 1923 the extension of the life of ties through treatment has not effected any decrease in the number purchased, but the number of ties purchased in 1925 was less by 18 per cent than the number purchased in 1923.

MRS. GARST PUT OUT FIRST DATIL FIRE

To Mrs. Garst goes the honor of subduing the first fire of the season, states the Datil Bulletin. The fire which was a Class B broke out along the Ocean to Ocean Highway, seven miles northwest of the Baldwin Ranger Station. Ranger Garst was away on a field trip and Mrs. Garst took a crew to the fire and had it under control in three hours.

LADIES, ATTENTION!

Rastus -- "Ah wants a divorce. Dat woman jes' talk, talk, talk, night and day. Ah cain't get no rest and dat talk am drivin' me crazy."
Young Lawyer -- "What does she talk about?"
Rastus -- "She doan' say."

Service Bulletin

U.S. FOREST SERVICE
(Contents Confidential)

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DEATH OF MR. SUDWORTH

It is with profound regret that we announce the death of Mr. Sudworth, on Tuesday, May 10, at his home in Chevy Chase after a very brief illness.

Mr. Sudworth had a continuous connection of nearly 41 years with the Forest Service and its predecessors, the old Division of Forestry and Bureau of Forestry, having received his appointment on August 31, 1886. He was not only by far the oldest member of the Forest Service in point of service, but was dean of the forestry profession in the United States.

As Chief Dendrologist of the Forest Service, Mr. Sudworth had achieved wide distinction. A fuller account of his work and life is appearing in the OFFICIAL RECORD, which reaches all the field force; but the following letter records more intimately the great sorrow his death has wrought upon his fellow-workers.

My dear Mrs. Sudworth:

The whole Forest Service, from youngest to oldest, has but one thought to-day. Mr. Sudworth's death takes from our midst one of our best loved and most revered members—our dean in years of service, our most eminent figure in scientific accomplishment, our veteran comrade and associate, our long-time friend. In this hour of loss and sorrow our first sympathy is necessarily for you.

Though he began his labor here so long ago that none of us have served an equal time, and had given all his working life to our public undertaking, he is prematurely removed from our number and fellowship; for his usefulness and powers were still at their height. We shall miss him more than any words of mine can adequately tell you; and his passing means a loss to science as well as to the cause of forestry, which will be felt far beyond the circle of those immediately associated with him. If it carries any comfort in the midst of your overwhelming personal bereavement, you may justly feel pride, even in your sorrow, that his fruitful life won so well-earned permanent recognition, and that his memory will endure, not only in our hearts for what he was, but in the world for what he did. That pride we share with you.

I ask that you permit me to extend to you, on behalf of all in the Forest Service our respectful and profound sympathy.

Faithfully yours,
E. A. SHERMAN

CLOSET NATURALISTS

By Elers Koch - D-1

Munn's article, "Trailing the Enemy," in the April 25 issue of the Service Bulletin brings to my mind Theodore Roosevelt's outburst against "closet naturalists," who derive all their information about natural facts from the study of dried skins and bones and dead specimens brought in to their laboratory from the great outdoors.

We all know that laboratory work in biology is necessary in order to meet one phase of the study of nature, but the really great naturalists who are responsible for most of our knowledge have all gone to the field for their observations, and left the necessary dissection of carcasses largely to lesser men.

A proper recording of important facts and analyses of such written records is a part - probably a considerable part - of the job of fire control. But the assumption that the drawing of graphs and the tabulation of figures is a major solution of the fire problem is surely a glorification of the "closet naturalist's "point of view.

There is no other branch of forest work for which we have as detailed reports or as complete statistics as we have for forest fires. While possibly something further might be done with fire statistics, their compilation has by no means been haphazard or partial. Most of the juice has been sucked out of them.

The fundamental error in Munn's conception lies in this quotation:

> "Is it not time, instead of theorizing as to the effect of various factors and guessing at what happens under a given set of conditions based upon partial facts, that we KNOW? And where can better information on such points be found than in the many and rapidly accumulating individual fire reports? °°°°"

As a matter of fact, any one who has had much fire experience should know that reports can give only a fraction of the real facts, and frequently omit the most essential things which would show up to a man on the ground. Most of the mistakes made, and inefficiencies which occur, do not appear in the reports at all. It is not every man who is willing to write his mistakes into the record, and often the man writing the report does not recognize his own failures.

The real solution to the fire problem rests right in the men on the ground. A strong, well-trained personnel, from smoke chaser to Supervisor, is the real answer, and the building up of this personnel is the main job rather than the building up of a web of statistics. July and August are far better months in which to acquire information on forest fires, and the means of controlling them, than December and January.

I doubt if it is sufficiently recognized in the Service what a tremendously important element the personal factor is in fire control. The record may show prompt discovery, start and arrival at a fire, but who knows whether the fact that a fire got beyond the control of the smoke chaser was an unpreventable act of God, or whether it was because the smoke chaser did not have all the tricks of the trade in checking and holding a spreading fire till he could get a safe line around it, or lacked the physical and mental stamina to stay with a man-killing job. We are too apt to reckon our strength statistically on the assumption that a smoke chaser is a smoke chaser, a foreman a foreman, and a ranger a ranger. Some rangers are three men and some less than half a man.

The main point I want to make is that the statistical, and even the whole investigative phase of fire control, is only a contributory factor,-important, to be sure, but far less important than the selection, development, and training of the force of men who organize and execute the prevention, discovery, and putting out of fires.

SOME FIRST EDITIONS

By Will C. Barnes, Washington.

We are in the habit nowadays of imagining that the most of the problems we are facing are brand new and that we are the real discoverers. A little delving, however, into past history will nearly always convince us to the contrary. Take for instance, the question of eradicating the Barberry bush. As early as 1726 the selectmen of the province of Connecticut passed a law as follows:

"Whereas the abounding of Barberry bushes is thought to be very hurtful it being by plentiful experience found that where they are in large quantities they do occasion or at least increase the blast on all sorts of English grain."

Barberry eradication therefore is almost two centuries old in this country.

We fondly imagine that the branding of livestock belongs exclusively in the Western range States, and that it originated there. As a matter of fact the Council of New Plymouth, Massachusetts, on November 15, 1636, passed the following order:

"That every man's marke of his cattell be brought to the towne booke where he lives and that no man give the same but shall alter any other bought by him and put his own upon them."

Also in 1662 they had a law to punish stock thieves in Maryland.

Hog stealers in that colony were to be branded on the shoulder with a "red hotte iron", the irons being provided in every county court and " used by the direction of the court."

There existed much the same order for the branding of horses in all of the early colonies, Georgia, the Carolinas, Pennsylvania, New York, Maryland, and Virginia, being especially strict in the enforcement of the branding and marking laws. Beverley's History of Virginia, published in London in 1705, makes the following rather interesting statement regarding wild horses at that date:

"There is another kind of sport, and that is the hunting of wild horses. You must know they have many horses foaled in the woods that never were in hand and are as shy as any savage creature. These having no mark upon them belong to him who first takes them. The captor commonly purchases these horses very dear by spoiling better in the pursuit. All he has for his pains is the pleasure of the chase for the horses are so swift that tis difficult to catch them * * * when they are taken tis odds but their grease is melted or else being so old they cant be tamed."

We used to talk about "running a horse till he melted his taller" but the expression seems to be ages old.

Roberts of the Sitgreaves has been looking up the question of broom tails, willow tails, "dilseys" etc. as applied to wild horses. He might discover some early information in this volume which is not generally known.

There are references both to wild horses and wild cattle in Beverley's and other histories of the early Colonial days showing that they ran sometimes in bands of three or four hundred; one reference to a thousand wild cattle on a certain range in South Carolina being well substantiated.

In 1661 in Maryland there existed many herds of half wild unmarked and unbranded cattle running in the woods. A law was passed by the Governors of the colony granting permission to any one to hunt and kill them on shares "the profits to be divided equally between the Lord proprietor and the hunter". (Carrier Beginning of Agriculture in the U. S.) Eventually they had to repeal this law because the hunters became careless and failed to distinguish between unbranded and branded aniamls. They were after meat regardless of ownership. This very thing happened in Nevada in connection with killing wild horses within the last fifteen years. One can easily realize how "history repeats itself."

FIRE CONFERENCE AT MISSOULA

The following report of the fire conference at Missoula is given by Mr. Rutledge:

"Every angle of fire control was discussed. The following points appeared to be the high spots which might be of value for consideration:

"The significant thing that stood out was that 14 per cent of the fires which were beyond a Class A size reached these proportions because of some failure in the organization. This emphasizes the importance of human action in our fire organization. Among the failures noted for fires reaching large proportions, are the following: In one instance, the truck which was to carry the men and outfits was not in condition to go. In another instance, a Ranger having 10 men at his station, upon receiving the report of a fire sent one man to it, this man probably being the least qualified of the number available. The other 9 men were at the station and on pay at the time. Because of the failure to send enough men and act quickly, this fire reached large proportions and cost many thousands of dollars to extinguish. Apparently a large number of fires reached large proportions after having been placed under control, as the men in charge thought. The fact of the matter is that the fires were not out when they were thought to be. On some Forests there seemed to be too long a time between the starting of the fire and the arrival of men on the line. On one Forest this average elapsed time was given as 11 hours. In several instances, the search for fires after lightning storms was difficult and fires got a good start before being found, due to unfamiliarity of the smokechasers with their territory.

"Another frequent cause for fires gaining large proportions after once being under control was the failure to mop up thoroughly, the leaving of burning snags within or near the fire line, the failure to have a clean trench, and the failure to promptly burn out the small points within the fire line, all of which came in for a lot of criticism.

"There seemed to be a very strong question whether night detection, night dispatch and night travel and work were being followed up to the fullest extent. All of these points might have been raised in this District at various times, and the fact that failures of this kind contributed to the District 1 trouble emphasizes the necessity for the greatest effort to organize so that this class of failures will not occur.

"The discussion of this kind of failures, brought very prominently before the conference the question of rules or codes versus the leaving of things to the judgment of the men on the ground. The argument on this point sometimes became very warm. I believe it was the general impression that rules and codes should be formulated and enforced to the limit. It seemed to be the opinion of the meeting that a rule should be formulated requiring that equipment be in absolutely good shape and ready to go at an instant's notice, and when formulated it should be strictly applied. In one instance a trail foreman used fuse in blasting during a very dangerous season and started a number of fires which cost a lot of money. It would appear that in this case, a rule against blasting with fuse should be formulated and strict disciplinary action applied if the rule is violated. It also appeared to be the opinion of the meeting that rules on mopping up should be thoroughly understood and applied without flexibility.

"The above are simply given as examples of the discussion on this point and what appeared to me to be the general opinion.

"It is apparent that thorough training and continued drill is one of the best ways to prevent failures in the organization. District 1 has been doing, or intends to carry out an intensive training program, among which are the following steps:

"Training one or more men in each trail or road crew for emergency smokechaser work, who can immediately take their position in the organization when emergencies arise. District 1 has been carrying on quite an intensive system of training of guards and smokechasers. They plan on seeing that each guard and smokechaser is personally conducted over his territory by a District Ranger, if this is at all possible. They suggest during seasons of less than emergency conditions that guards be sent back to their fires after a day or two in order that they may ascertain the action of the fire and the result of their work and detect any weaknesses. They propose to reach a point where every Forest will take the initiative and hold their own fire meetings each winter, at which an analysis of most of the fires for the past season will be made for instructional purposes. In this analysis, it is the intention, of course, to bring out good practices as well as bad. They are taking every measure to impress the smokechaser with his importance at critical times in getting to the fires and putting them out while small.

"Another point which came in for a great deal of discussion was the question of the thoroughness of inspection by Supervisors and Rangers. The discussion left a doubt in my mind whether these inspections are being made with the thoroughness desirable and whether after things are found wrong they are immediately corrected. District 1 proposes to give the Supervisors, Rangers, and other members of the Forest overhead force thorough training in the field in handling fires.

"There was a strong argument on the part of a number of District 1 men for a larger yearlong force, the feeling being that they were not getting results from so many temporary men and that the yearlong force was not now sufficient to train and direct the temporary force being used.

"Incidentally District 1 worked last season something like 120 students. These students came from nearly every forest school in the United States. An analysis indicated that while the men from Idaho and Montana possibly did a little better work generally, the proportion of failures and successes among the eastern and western schools were not really distinguishable." - From D-4 Daily News.

COLONEL GREELEY MADE DOCTOR OF LAWS

A press dispatch from Berkeley, California, dated May 11 announces that Colonel Greeley received the honorary degree of Doctor of Laws "in recognition of outstanding work in behalf of humanity," at the sixty-fourth commencement of the University of California.

NOT WITHOUT HONOR

People who have ignorantly or maliciously or jealously scoffed at the timber resources of the Manzano Forest would do well to read an article entitled "Mammoth Lumber Fields" in the May number of the English "Windsor Magazine," where in the second paragraph it is stated unequivocally and without reservation that "amongst the foremost forests of the United States is the Manzano National Forest." This authoritative pronouncement uttered with the characteristic conservatism of the English should still the dangerous jibes that have been known to be surreptitiously bandied about at Supervisors' meetings, and particularly at the annual meetings of the Scientific Society of District 3, which can now be restored to its original function of diffusing wisdom and the love of wisdom among foresters. Ex-Manzanito.

THE CRATERVILLE PARK COVENANT

By J. H. Hatton, D. 2

Unique in the local history of southwestern Oklahoma is the Craterville Park Covenant entered into by Frank Rush. former Supervisor of the Wichita, and the Indians of Comanche County on the 25th of May, 1924. The covenant is attractively printed on soft deer skin and great ink thumb marks stand for the signatures of three Indians opposite the signature of Frank Rush. It is worthy of a photograph for permanent record. There is no doubt that it is resulting in wholesale uplift among the Indians in that locality and it serves to illustrate the generous public spirit so characteristic of Mr. Rush.

"This covenant made and entered into by Frank Rush of Craterville Park, Comanche County, Oklahoma, party of the first part and the Indians whose names are hereto subscribed, parties of the second part. Witnesseth: Whereas, it has become necessary for the American Indians to take steps for the advancement and uplift of their people, and especially to teach their children the value of building character and becoming self-supporting, this covenant is entered into as a means toward that end. Therefore, the parties hereto covenant and agree among themselves as follows:

There shall be held annually at Craterville Park an agricultural Indian Fair.

The object of this fair will be to create self confidence and to encourage leadership by the Indian for his people, a belief in the capacity of the Indian to better his position and to take his place on terms of equality with other races in the competitive pursuits of everyday life, and a desire to accomplish the most possible for himself and his people.

All Officers, Directors, Judges and Exhibitors at the aforesaid fair must be Indians and all said officers, directors, and judges must be elected by the Indians themselves.

In testimony whereof we have hereunto set our hands this 25th day of May, 1924."

WHY COW MONTHS?

By A. H. Abbott, Helena

In reference to Sandvig's article in Service Bulletin of April 25, there are several disadvantages in issuing permits calling for cow months. First, the difficulty of correct utilization. For example, if we have a range which will carry 500 cattle for a six-months' period, May 1 to October 31, and issue permits on the basis of a cow month, what is to prevent all of the grazing being concentrated on the first three months of the season? This would mean that a larger portion of the grazing would be done before the forage has fully developed than under the present system. Most of us recognize the fact that spring grazing, particularly early spring grazing, is the greatest factor that tends to injure National Forest range. A good many of us feel that one month of early spring grazing is fully as detrimental to a range as two months of grazing late in the season.

Second, under our present system we have a very much better and cheaper system of control than one would have under the cow-months' system. Just figure the additional costs for salt plan adjustment, as well as distribution of stock on the range.

Third, we have to consider the satisfaction to the permittees. Certainly, most of the permittees, would kick if a few men tried to turn out on the cow months' system early in the spring and thus take the cream of the grazing. Spring range is at a premium anyhow, and usually arrangements can readily be made for stubble fields and the like for late summer and fall grazing.

If John Hereford ships his beef in September and he has extra stock, there is certainly nothing to prevent his putting on other stock to take their place, providing he has taken the matter up with the ranger beforehand.

Could not the beef steer permits be handled by having special periods to cover such cases as Sandvig has mentioned?

FILES ON PARADE

Mrs. Chipley, in charge of the District Office Files, left her museum of designations during American Forest Week and took the stump in Pueblo for an intensive campaign in the public schools.

During the five school days of the week, she made 20 talks which, together with 4 other talks made in Denver and Georgetown the last of the week before, reached a total of 6,460 pupils, all of whom it is safe to say know more about the importance of forests and conservation than they did before they heard Mrs. Chipley's interesting and instructive story.

The Pueblo Chieftain refers to "Mrs. Margaret Chipley of the Denver Forest Service office who is making such a hit with the Pueblo school children." By virtue of her activity, the same newspaper gives us credit for public spirited interest as follows: "The Government Forest Service is taking an active part in the local observation of Forest Week. -District 2.

FROM THE FOOT OF THE CLASS

By Robt. W. Putnam, Fremont

A solution of the problem set by Mr. Koch in the December 27, 1926, Service Bulletin would lift a heavy burden from the shoulders of Managenment, wherever it has to deal with mixed stands of desirables with inferiors, where the inferiors tend to be highly defective and where, worse yet, the inferiors form the climax type. The temptation, of course, is to try to favor the more desirable species at the expense of the inferiors, but with markets as they are even such trials are often impossible and what is actually accomplished is exactly the reverse of what is hoped for, i. e. the inferiors are favoreds.

With possible practices, forcibly limited by economic conditions, the handling of these forests boils down apparently to a selection between one of two evils; (1) either we cut the inferiors and lose money or materials, or (2) we leave them standing and lose growth.

The economic conditions cannot be altered, or at least not quickly, and meantime the demand for superiors goes merrily on, and the problem applies to larger and ever larger areas. A reasonable solution for it would be, one supposes, very welcome.

If, in this case, the hemlock and fir are left on the ground and the pine taken, the area is left safe but non-productive. If defectives are felled and burned up, the area is put into productive shape but all the usable wood contained in these defectives is lost to commerce. Roughly, the problem is to choose between these two admittedly evil courses.

In Bulletin 722, "A Study of Heart Rot in Western Hemlock," by Weir, are some interesting figures anent depreciation rates in hemlock in what I take to be a type similar to this one on the Cabinet. On page 22 is a table which states the volumes in cubic feet of trees, and rot for trees 161-200 years old, and for trees 201 years and older. The table is as appended, for what Weir calls slope type:

Classes	No. of Trees	D.B.H. (inches)	Height (feet)	Volume cu. ft. total	Volume cu. ft. of rot	Rot Percentage For class	Rot Percentage For stand Total	Rot Percentage For stand Infected trees
41-100 years	15	8.4	62.6	19.8	.62	3.1	30.8	90.1
101-160 years	18	13.6	88.9	52.6	13.20	25.1		
161-200 years	23	17.5	160.0	107.6	33.50	31.1		
201-yrs. & over	25	21.5	117.0	175.5	59.40	33.8		

Mr. Koch's Cabinet stand is 25.4 defective (in scaled logs), but I take for granted that some defective trees were left in the woods and that because of this the stand defect is higher than that in the logs taken out. I am going to do a large amount of taking for granted here anyhow. Probably the Cabinet hemlock is as bad as that at Priest River.

If the third class is taken to be 160 years old and the fourth 200 years old, growth from one class to the other has gone on at about one half of one per cent. Mean annual growth was 1.7 cubic feet per year or 25% of the growth. Meantime the rate of decay is on the increase and the rate of growth is on the decline, and so much so indeed that perhaps a guess that decay surpasses growth shortly after 200 years is not so far off. At 300-350 years it seems likely that decay will annually make an appreciable encroachment on the volume of the stand and rot will, according to the tables, amount to at least a third. And a third defect means that much less than two thirds is usable. Supposing that some day hemlock will show a plus stumpage value and that this day is thirty years away, and that in the present 300-350 year stand rot amounts to about 1% annually (simple interest), stumpage will have to be enough to take care of increased logging costs (due to defect) of roughly a third, and if they are, a third of the present merchantable volume is lost anyhow. Personally, I don't think 30 years will bring any such stumpage price for hemlock, or for some of the other inferiors, barring acts of God or good advertising, but if they do the dubious salvage then of two-thirds of the present merchantable stand is a poor thing to set against the certain loss of growth and one-third of the stand we now have. The growth up to 200 years, according to Weir, seems to be pretty good, about one-half cubic foot per tree per year, but above 160 years the rot increases rapidly. Maybe this rot can be very materially reduced in the next crop, by destroying the present rotten hemlock, i.e. reducing the size of the source of infection. It occurs to me that some such measure of forest sanitation would be a genuinely constructive piece of business and one which in dealing with defective stands is not properly to be ignored.

I have not, I confess, any great confidence in the guesses I have here made; I would not be willing to run any woods I owned myself on any such "maybe so" data. But I do think that in some such information is the best means of managing some of these pestilent mixed stands. Management itself, unaided, is helpless. There is, for one thing, too much confliction of what is mo more than opinion, for while one man is a fiend for putting an area to growing, another is all for conserving what is there already. Between these two courses where they collide either there is no choice or one is preferable. Comparative figures on depreciation, growth, or yields are all that will determine which is preferable and which, hence, best to follow:

As regards one operator's intensive selling campaign, I doubt its efficacy unless that operator has unlimited means. But for all that, if the Douglas fir gang can see profits in advertising their product it might be that markets for Idaho hemlock and white fir and for Blue Mountain Douglas fir, larch and white fir, could be brooded and hatched if it were tried. Public Relations, by acquainting the public with the merits and uses of these little known species, can help Management considerably. I notice in the Postoffice a placard by the U.S.D.A. exhorting us to eat meat. How about one there lauding hemlock and white fir for building chicken coops, or whatever else it may be good for? "Fire -consciousness" is all right; how about "wood-consciousness", the knowledge that little-used species will do well enough and be cheaper for various uses?

Products, in their studies of little-used species, by finding uses and handling methods for hemlock and white fir, can make available to Public Relations and to lumbermen a body of definite and concrete facts with which to create a receptive market for so-called inferiors.

It is undoubtedly a case where specialists outside of Management need lay the ground-work for the proper management solution. We don't build houses by beginning with the roof, and we can't solve the problem of "inferiors" by our present methods.

The Forester's Office is in receipt of a great many letters from different sections of the country, including Portland, Oregon, commending Colonel Greeley for his dicision in which he declined to give his approval to the construction of a cableway to the summit of Mt. Hood. The only note of disapproval comes from some business organizations at Portland and Hood River, Oregon. Several prominent citizens of those sections, on the other hand, have expressed themselves as strongly approving the position taken by the Forester. C.H.S.

FOREST SERVICE
U S
DEPARTMENT OF AGRICULTURE

Service Bulletin

U.S. FOREST SERVICE
(Contents Confidential)

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OUR HIGHEST COURT SPEAKS.

By Harry Irion, Washington

On May 12, 1925, an indictment in two counts was returned by a Federal grand jury against D. J. Alford, of Crestview, Florida. The first count charged Alford with having set fire to timber, underbrush, and grass on public land within the Florida National Forest in violation of Section 52 of the Criminal Code, and the second charged him with violating Section 53 of the same Code by starting a fire on private land near grass, timber, and other inflammable material on National Forest land, and then leaving it before it was totally extinguished.

The judgment of the District Court, entered March 3, 1927, sustained a demurrer to the second count on the ground that Section 53 was not intended to make it an offense to build and leave a fire on land outside the public domain but near timber or other inflammable material located on public land, and that if it was intended to cover such outside fires it is unconstitutional and void. By a writ of error, taken out by the Government under the Criminal Appeals Act of March 2, 1907, the case was then brought before the United States Supreme Court, where it was argued April 28, 1927, the Government being very ably represented by R. W. Williams, Esq., Solicitor of the Department of Agriculture.

The opinion of the Supreme Court, delivered by Mr. Justice Holmes May 16, completely upholds the construction heretofore given Section 53 by the Government, namely, that it covers a fire started and left unextinguished on private land near timber or other inflammable material on National Forest land. "The purpose of the Act" said the Court, "is to prevent forest fires which have been one of the greatest economic misfortunes of the country. The danger depends upon the nearness of the fire not upon the ownership of the land where it is built."

The Court also held the statute to be constitutional, saying that "Congress may prohibit the doing of acts upon privately owned lands that imperil the publicly owned forests." Taking into account the danger to be prevented, it felt that the statute "lays down a plain enough rule of conduct for anyone who seeks to obey the law."

This decision from our highest and final judicial authority sets at rest any question that may have existed respecting the construction and constitutionality of Section 53. Its importance can perhaps best be appreciated by contemplating what the situation would have been had the Supreme Court affirmed instead of reversed the judgment of the District Court. That Mr. Alford will now have to stand trial will have a good local effect, but is relatively unimportant compared with the nation-wide application of this clear cut decision.

Another noteworthy feature of this case is the fact that only about ten weeks elapsed between the date the District Court rendered judgment and the date it was reversed by the Supreme Court.

SILVICULTURE IN THE MAKING

A number of District 5 men interested in the regulation of caterpillar logging, got together at Camp 8 of the Fruit Growers Supply Company, Lassen Forest, Sunday afternoon, May 1.

The damage done on a 10-acre plot studied by Berry last year was analysed and the caterpillar logging going on was closely inspected. After two days of field work one day was devoted to office discussion in Susanville. As a result of this meeting a set of instructions to woods workers concerning the regulation of falling and logging on a caterpillar job will be issued to Supervisors in a short time.

A similar meeting for west slope forests will be held on the Stanislaus in July. - T.D.W. in D. 5 News Letter.

MY TRIP TO THE FOREST SCHOOLS

(From a report by A. G. Hamel, Superior.)

I was very much impressed during the entire trip with the courteous treatment which I received from the faculty of each school and with the great interest taken by the students, which of course made it much easier for me to talk to them. They asked a great number of intelligent questions during my talks as well as during the numerous conferences I had with them. I was very much surprised in learning how little the men really knew about the work of a Forest Ranger. I informed them frankly that I doubted that the average junior forester could go out and successfully handle a ranger district, and a good many of them admitted to me after I had given the talks that they were doubtful whether they could handle a ranger district without having more experience. A great many of them had felt that the work of a Forest Ranger corresponded to that of a laborer, who had very little responsibility and had no opportunity of using the knowledge which he had acquired at school. None of them objected to taking a ranger job after I had explained the work of a Forest Ranger. I tied all of my talks directly to the ranger district and Forest and gave concrete examples and problems which confronted the ranger and the various means used to work out some of these problems. My talks took up different lines of work, which made it an easy matter to direct the points to actual conditions in the field.

It was evident after talking to the professors and also some of the students that the Forest Service is not, as a whole, getting the best men. There is a feeling that we can get these men if a concerted drive is made for them. The faculties feel that they can direct many of these men toward the Service if we advise them where there are opportunities for training and give them some of the varied work of the Service. They felt that we have not been explicit enough. This, of course, means that there should be closer contact between the schools and the District Offices, or possibly, even the Forests. The work that District 7 is doing along that line seems to be greatly appreciated among the schools. This District is of course nearer these schools and that makes it rather attractive. Many of the men are now becoming interested in research work. The higher pay possibly is an inducement, but for some reason, the students seem to know about this work.

There was no opposition on the part of the faculties to taking in junior foresters as rangers. Many of them felt that it was a good plan. There was, however, some concern as to how rapidly they would advance, whether or not the practical men had the advantage. This, of course, resolves itself into an individual question and cannot be answered in the abstract. However, the students as a whole had very little idea about the ranger's work and his responsibility. In this respect, I am frank in saying that such a trip as I made is, in my opinion, productive of much good. The students seemed much more interested in the ranger's job after they knew more about it. I firmly believe that it will work out very satisfactorily and that there will be little or no complaint in starting the technical man as a ranger, or if you please, even as assistant to a Forest Ranger.

Reference has been made in this report to men who have been specializing along some definite line. I have particularly in mind the student who has taken the general forestry course but has specialized to some extent, such as in logging engineering, public relations work, fish and game, recreation, or pathology. Several of that type came to me and asked about opportunities in the Service. They felt that there was no opportunity for them. It appears to me that we frequently need in the field men of that type who have had this specialized training with a forestry background. There are certain ranger districts that need development along specialized lines and I feel that there is a place for such men and they appear willing to tackle a ranger's job. By having such men, I believe our organization will broaden. We should be the melting pot for the development of the Forest and all the resources that go with it. The schools in such cases, I believe, have an obligation. By notifying the Service of such men they might be placed to good advantage during the training period.

There was one thing I noticed at the schools, which I believe should be given careful consideration. Some of the men who have gone out upon the Forests for training have returned to the schools with an entire misconception of the Service and the work which it is doing. They transmit this feeling to other students and do considerable harm. When these men go out upon a National Forest, I believe we should make it a point, even though the men are engaged in labor work, to meet with them, telling them about the work of the region as it applies to the Forest. Also, it would be well to give them some of our reports and plans to review; talk over their shortcomings and good points with them; sell them the Service. They will then go back to their respective schools just a little more enthused with the profession and its opportunities. These men might also be a correlating agency between the field and the schools.

BITTEN BY A SKUNK

Ranger Thompson reports that on the night of April 28, John Wakefield, cook with the telephone crew was bitten twice by a skunk, states the Coronado Bulletin. It appears the skunk jumped up on the cot when Wakefield was sleeping and bit one hand and when brushed off, the skunk made another attack and bit the other hand. Ranger Thompson took Wakefield to the Army Hospital at Ft Huachuca. A call was made for serum and Dr. Clyne of Tucson secured a supply from Phoenix which was sent to Fort Huachuca. This is the first case this season under the Government Employees' Compensation Act. We hope Mr. Wakefield will recover rapidly. - D. 3 Daily Bulletin.

VERNE RHOADES NAMED MEMBER OF FOREST COUNCIL

Verne Rhoades, former Supervisor of the Pisgah and now consulting Forester for the North Carolina Park Commission has been named by Secretary Jardine as a member of the Appalachian Forest Research Council. Mr. Rhoades succeeds B. W. Kilgore, Director of the North Carolina Agricultural Experiment Station at Raleigh, whose appointment has expired.

The council, created in 1924, correlates the research activities of all forest agencies in the Appalachian States and advises the Department of Agriculture upon its forest research program, particularly as it applies to the work of the Appalachian Forest Experiment Station.

WILDERNESS AREA IMPROVEMENTS

By L. G. Hornby, Flathead

The Flathead's Upper South Fork Valley is already far famed as a wilderness area, and recreational use can be foreseen as the predominant and almost exclusive value for many years to come.

Recreational buildings are already constructed in the heart of it. Two are special use cabins. The others, about eight, are homestead improvements. Most of the Service Bulletin articles have specified these as not permissible in wilderness areas. Let us tear down the special use cabins. What shall we do with the homestead improvements which are by far the more objectionable from a standpoint of attractiveness? These homsteads serve nothing but recreational use and one of them calls itself a Dude Ranch. One of the special use cabins is under permit to a Dude Rancher who uses it as a sub base just as the homesteader Dude Rancher does in his recreation business. It is used to store equipment and to provide comfortable dining and lounging quarters. Living quarters are provided by unframed tents. Let us erase these facts from the picture for a few moments and look at the area from the standpoint of what it needs.

The heart of this area is a rather narrow main valley broadening into two large basins at Danaher and Big Prairie seventeen miles apart. Many large side drainages up to twenty miles long are much used for pack trips of a week or more duration. These side valleys climb to the rugged ranges of the Continental Divide on the east and the Swan Range on the west with many peaks over 8000 ft. elevation, and the most attractive scenery is found in the broad lake studded Alpine basins in the heads of these side streams several of which head in glaciers. The area is about fifty by sixty miles (flat measure) between the nearest roads from which access is obtained in four directions, requiring two or three days minimum pack and saddle horse travel. Usually more time is taken.

The limiting factor in obtaining good distribution of recreational use over this area is horse feed. The most needed camp grounds are seriously overgrazed every year and it has been found necessary to close some of these to use to provide the bare necessities for Government pack stock. The use of this area is rapidly increasing. Several dude wranglers have applied for permit to fence pastures to keep out other stock and provide for their own. None have been allowed or are contemplated. Hay meadows can and will soon have to be developed. This means fences and hay barns and some kind of quarters for the men who put up and sell hay.

If recreationists are coming to hay feeding, it seems desirable to take any steps possible to defer or limit this as much as possible by reducing the necessary horse days used in this work. One way is to permit storage buildings to be constructed by dude wranglers so that a minimum of horse days on the grazing grounds will result.

Perhaps our present permit to the Dude Rancher is logical and properly planned. Even if it were not, why should we not permit on Government land the same kind of use which we ourselves have developed by listing the homesteads in the heart of this territory at Danaher?

The Danaher and Big Prairie Basins are the working centers of the recreational use. Only at Danaher have homesteads been listed and here I foresee that we will have many commercial developments on private land that are solely for the support of recreation. We will not be able to control these activities. At Big Prairie we have no other structures than required by the district ranger headquarters. The natural conditions are much the same as at Danaher. Hay raising can be developed and commercial supply facilities can be controlled under special use permit. Why should we not permit at Big Prairie the same development that will grow up at Danaher? Continuing this same reasoning further, why would it not be logical to permit artistic cabins to be scattered over this territory so that their owners can hire pack outfits to supply them and take them in and out, resulting in a minimum of horse days required in this work? There is now an enormous waste of range. One tenth the stock would perform the same work that is now occupied in intermittent travel and camp moving, and less still would be necessary if tentage were eliminated and beds were left in summer cabins.

What is there about an artistic cabin that is less picturesque than an ordinary Dude Camp?

We might exclude the Danaher and Big Prairie basins from the wilderness designation and permit no uses in the remainder. The body of the proverbial ostrich would, however, be conspicuous and I foresee a multitude of complications in deciding how the plumes of the bird should be plucked.

AFTER TWENTY YEARS

It was my good fortune to enter the Forest Service under the leadership of such outstanding figures as Theodore Roosevelt and Gifford Pinchot. The Service, under the stimulus of such leadership never could, and since their day, never has, followed a policy of drift or refused to face an issue until compelled to do so. Strong personalities such as Roosevelt and Pinchot in responsible positions, would never show such symptoms of weakness or consent to play such a role. There are those who sneer at idealism but the Forest Service to-day is still guided by the idealism of T.R. and G.P. and because of it, the strength of the Forest Service rests on these same high ideals and the loyalty to national service of its personnel. The past twenty years in the Service have been worth while and I care not who takes issue with me. - Fred Winn in D-3 Daily Bulletin.

WHAT PRICE DELAY.

By E. S. French, D-3.

Attorneys General of the United States and other high officials have from time to time besought Congress to enact a statute punishing interference with, assault upon, or killing of officers or employees of the United States engaged in the performance of their official duties. But thus far no such legislation exists except as to certain limited classes of Federal workers.

Had there been such a law, in my opinion the tragic killing on March 18, 1927, of former Ranger William C. White at Capitan, New Mexico, by T. H. Shoemaker, aged homesteader, would not have occurred, and Shoemaker, killed by a Sheriff's posse while resisting arrest, would still be among the living.

Back in the fall of 1924 Shoemaker, deeming himself aggrieved, threatened to set fire to the forest range and stated that he would kill any man attempting to extinguish the fire. He also threatened the lives of Forest Supervisor O. Fred Arthur and former Ranger White. On November 25, 1924, a fire occurred adjacent to Shoemaker's homestead for which he was believed to be responsible, but the necessary legal evidence could not be secured. Of course the mere threat to set a fire will not convict the threatener of a fire subsequently occurring. A similar fire occurred May 9, 1926, and lastly, a third on March 15, 1927, just before the tragedy.

Naturally, the State authorities when informed of the actions of Shoemaker, while agreeing that something should be done, were not enthusiastic to take the initiative, when the United States had not seen fit to protect its employees in the performance of their official duties. Of course the officers threatened could, as private citizens, have made complaint under the State law and have carried the burden of prosecution with the possibility of subsequently having to defend a civil suit for damages in the event of the acquittal of the accused. This, they did not care to do. Thus the old man waxed bolder. His threats increased in vehemence. Apparently, he listened to the echo of his own voice until he convinced himself that he was a bad man. In the early morning of

March 16, 1927, he took two rifle shots at three fire-fighters. He seemed determined to force an issue with the law and sent word to the authorities that he did not intend to submit to arrest.

My point is that if, in the beginning, there had been an applicable Federal law, Shoemaker would have been called to account before it was too late. Offenders have a wholesome respect for Federal authority where it exists. But here, for the lack of legislation, another good man unnecessarily lost his life in the performance of his duty.

LIMIT ROADS IN HIGH BACK COUNTRY

Limitation of road building in the High Sierra in order to keep a large mountain wilderness area in its natural state as a playground for the people of California was advocated by Col. W. B. Greelly, Chief Forester, at Fresno on May 4. Within the past 20 or 25 years vast stretches of back country have been opened up for automobile tourist travel by the building of roads, he pointed out, with great benefit to the people of the State, but in his opinion, a policy of limitation should be adopted now in order to preserve certain areas unmolested by man.

Although motor travel to the mountains in this part of the State has increased rapidly in recent years, there are great numbers of people who go to the mountains for "back to nature" vacations, with pack animals instead of automobiles. It is for this type of mountain enthusiast that Greeley believes certain areas should be protected.

The plan to limit mountain road building will not interfere with the proposed road to connect General Grant National Park and the Sequoia National Forest, Greeley said, and would not restrict the building of roads and resorts in areas already opened up. In time, of course, he added, certain invasions of the mountains must be made to open up natural resources to meet economic demands, but that time may be far off. - D. 5 News Letter.

SOTOL (DASYLIRION SPP.)

By Will C. Barnes, Washington

Under the heading "What Do Range Examiners Examine?" Daytonius comments on Range Examiner Campbell's statement in the April 25 Service Bulletin about the alcoholic content of this plant, but seems to have overlooked his misstatement to the effect that this plant "has no forage value." I wonder how they get that way.

Smith, in Bulletin No. 2, Division of Agrostology, page 25, says of its forage qualities: "A fodder plant of the lily family **** and is highly esteemed, producing fodder for sheep during periods of extreme drought."

I can't say so much about sheep but memory takes me back to a winter in the early nineties when many an old range cow in southern Arizona and New Mexico came through the winter and lived to lick the sides of her newly born calf that never would have seen the spring flowers but for this plant. Its succulent cabbage-like head was chopped up and fed to her and others like her by industrious cow persons who couldn't have told its botanical name on a bet, but without any book knowledge on the subject knew sotol to be a valuable forage plant when almost every other bit of forage on the range was gone.

AND A RANGER SHALL LEAD THEM!

On April 26, in the Shasta National Forest, there occurred a fire that will go down in Forest Service history not only as the opening gun of the 1927 fire season in northern California, but as a fire fought with one of the greatest arrays of "overhead" ever mobilized on a minor conflagration.

A contractor carelessly burning brush at mid-day was the cause of it all. The flames swept into the nearby brush field and the foresters, all assembled at a fire conference in Mt. Shasta City, hastily discarded brief cases, note books and pencils and substituted Practice for Preaching. After two hours of stubborn labor, the fire, which at times threatened a lumber yard and box factory, and even Mt. Shasta City itself, was conquered.

But glance over the following roll of fire fighters and figure the cost of suppression of this 10 acre blaze, to say nothing of the feelings of the lone ranger who led the "staff" into action:

Chief Forester W. B. Greeley, Assistant Forester Roy Headley, Inspector Earl W. Loveridge, District Forester S. B. Show, Assistant District Forester R. L. Deering, Fire Chief J. H. Price, and Forest Supervisors Jones (Shasta), Douthitt (Klamath), Price (Trinity), and Coffman (California).

And just to show that they hadn't lost the old "pep" and the know-how of it all, the whole bunch turned to and put out another fire the same afternoon. - D. 5 News Letter.

ATTENTION OF YELLOW PINE MARKERS

By Clark Mills, Payette

In marking groups of Yellow Pine of intermediate class, i.e. trees in the transition stage between blackjack and mature trees, the question often arises in the marker's mind- "How far can I go in thinning this group- If I take ¼ or ½ of them out now will the remainder put on enough growth through acceleration to offset the loss in growing stock- in other words which will give the most volume- many trees at less growth or fewer trees at greatly accelerated growth."

Growth studies on the Payette show the following: take a typical group of 4 trees ranging from 18 to 26" dbh- the trees isolated from other trees and standing within a circle of 12 foot radius. Borings show that these trees have all put on less growth for the past 12 years since the area was cutover than for the 12 years prior to that. We figure that to obtain full release we must cut 2 of the 4 trees. What do we get? On the 2 trees we cut we get 1,450 feet. Borings on a large number of trees in the immediate vicinity which have been given full release show the growth for 12 years after cutting as 3.5". Borings on a large number- some 150 to date- of trees in the Alder Creek region cut over from 40 to 55 years ago on the same sites show a growth for 12 years of 3.2"- for 50 years of 11.5". On this basis these 2 trees which we leave for accelerated growth will put on 12.6" of diameter growth in 50 years and will yield a volume of 5,505 feet. This gives a total cut of 6,955 feet. On the other hand, leaving the group intact for 50 years, giving the trees the same diameter growth for 50 years as is indicated by their growth for the past 12- gives diameter growths ranging from 2.5 to 4.6" with a volume at the end of that time of 4,842 feet. In this case the taking of ½ the number of trees gives an increase in volume in 50 years of 44% over that obtained by not thinning the group.

Group 2- a group of 10 ranging in size from 14 to 28" isolated from other trees, the outside trees being some 65 feet apart, the 2 outside trees having been released by cutting 12 years ago and giving a clue as to growth on the other trees were they also to be fully released. These 2 trees put on a diameter growth of 3.2 an 3.9 inches respectively. We figure we should take out 5 trees to effect full release. These 5 trees give a cut of 1,630 feet. The other 5 trees will put on 12.6 inches of diameter growth in 50 years and will give a volume of 12,126 feet- a total of 13,756 feet. Leaving the group of 10 intact for 50 years gives a volume of 13,915 feet. So, in this case, it is about a standoff. However, should the group have had its members better spaced so 6 out of 10 could have been left and still effect full release, the balance would have been in favor of thinning.

From the above it is apparent that the marker should go ahead and mark to obtain full release, thinning as much as ½ the number of trees if desirable. - D. 4 Daily News.

SHEEP, PERSONA NON GRATA IN THE WIND RIVER COUNTRY

Local settlers in the vicinity of Dubois, Wyoming who are interested particularly in the recreation business with game as an important contribution to that development have been holding mass meetings to protest against the introduction of a few bands of sheep by certain stockmen who have formerly been interested in cattle operations.

Certain small areas used by sheep in 1926 will not be so used this year but two small bands have been provided for, one on range used in 1925 and 1926 and one on unutilized cattle range, on the principle that the sheep are in the locality and it will be better for the game to keep the sheep off the winter game range during the summer season.

There are many sides to the question which will receive thorough investigation during the ensuing season to determine whether the present limited uses by sheep should be discontinued and due notice given the few former cattlemen now desiring to run sheep. As a general policy, the Forest Service has been giving wild life the benefit of the doubt in any range uses or adjustments which are concerned especially with the winter game range so important to wild life in that locality. The use of the forests for grazing may have a direct or indirect influence on this question, and as facts are accumulated, the administration will be fitted into the policy above expressed. A good deal of the controversy so far seems to be factional. - District 2.

COLONEL GRAVES UNDERGOES OPERATION

Word has just been received in Washington that Colonel Graves underwent an emergency operation for appendicitis on May 19. Latest reports are that he is well on the road to recovery.

ECONOMIC DEVELOPMENT

(Resolution passed by the Southern Forestry Congress at Jacksonville, March 22, 1927)

To insure the highest form of economic development of the 470 odd million acres of timber growing and other forest land of the United States, research in soil characteristics, reforestation, forest pathology, forest management, forest product, protection of forest against fire, prevention of erosion, use of forage coordinated with timber growing, and other investigations pertaining to the use of forest lands has a vital part to contribute. Although valuable as far as it has gone, it is apparent that the research done to date by Federal, State, institutional, and private agencies is entirely inadequate,

THEREFORE, BE IT RESOLVED, that the Ninth Southern Forestry Congress, recognizing the high importance of forest research, emphasizes the need for early coming to grip with the fundamental problem of forest land management and the utilization of forest products, as summarized in a publication entitled "A National Program of Forest Research," issued recently by the Society of American Foresters, on a scale thoroughly broad and in a thoroughly adequate manner.

THEREFORE, BE IT FURTHER RESOLVED, that this Congress heartily endorses the objects to be attained by an Organic Act for the recognition of forest research as an urgent national need, such as was embodied in the McSweeney Bill (H. R. 17406, 69 Congress); and

BE IT FURTHER RESOLVED, that States, institutional and private agencies, having a definite part to take in this field of research, may see their way clear to continue their forest research programs adequately expanded to do justice to the many problems of monumental scope yet unsolved.

Life is a grindstone, and whether it grinds a man down or polishes him up depends on the stuff he's made of.-From D.4 Daily News.

Service Bulletin

U.S. FOREST SERVICE

(Contents Confidential)

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SOLDIERS FOR FIRE FIGHTING

Using the regular army in the National Forests during the fire season for fire prevention and fire fighting is proposed in an article offered to "Sunset" magazine by Mayor James P. Bradner, ex-army officer, of San Francisco. Commenting on the article in a letter to the Editor of "SUNSET" the Forester writes:

"I have felt for some time that it would be possible for the military forces of the United States to assist effectively in the protection of forest and watershed land. One distinction I would like to make clear at the outset. Military forces could not be substituted for the existing organization developed for the protection of the National Forests or for the expansion of that organization necessary to get completely on top of our problem. I have recently gone over the fire protection requirements of the National Forests in the five heavily timbered Western States in considerable detail, meeting the various Supervisors group by group. It is evident to me that to bring our fire problems under the control needed we must expand our existing organization partly through more year-long Forest officers, including fire specialists; partly through additional summer guards; partly through better training of our organization from top to bottom in the technique of forest protection; partly through more complete fire fighting equipment; and partly through a material extension of measures of preparedness like the construction of fire breaks and the removal of hazards along the lines now going forward aggressively in Southern California. No use of the military forces can take the place of these needed expansions in the organization of the Forest Service, administered, equipped, trained, and inspired for the primary duty of preventing and suppressing forest fires.

"There is a danger in the advocacy of the use of military forces for forest protection in that it may conceal the need for larger appropriations to expand the indispensable organization for this purpose on the National Forests. For example, if I were offered $1,000,000 to bring the protection of the National Forests up to the highest possible stage of efficiency I would not use it by employing troops. I would use it rather for expanding the size and increasing the effectiveness of our present organization along the lines indicated above.

"However, in my judgment, this still leaves plenty of room for the use of troops as SUPPLEMENTARY to our protection personnel, just as the use of airplanes is supplementary to the detection of forest fires by the lookouts on the ground. I do not think it would be practicable to carry out any such sweeping plan for the employment of troops as Mr. Bradner suggests. You know the conditions on the National Forests well enough to appreciate the inadvisability of attempting to distribute large bodies of soldiers far and wide over the California mountains and expect to obtain efficient results from them. I do believe, however, that it would be entirely practicable and helpful to have a few central camps established at strategic points in the National Forests or National Parks or Indian Reservations where carefully selected small bodies of troops could be stationed for the summer period. These camps might be used very effectively for the training of the troops detailed to them in various forms of military service. At the same time, the troops would be available, and on immediate call to fight forest fires. Indeed, once such a camp were established and the officers and personnel got the feel of the country details of troops might be used for patrols or for strengthening our system of detection and intial action on small fires. They also might be used to good advantage in the building of roads, trails, and bridges. I would not want to attempt the inauguration of such a scheme on too large a scale at the outset. But I would like to begin with, say, two or three such camps in each State, with perhaps a battalion at a camp. The starting point would be to get these camps established and the men in place with a training program of their own, so as to make the time spent of the greatest advantage to the military establishment. We could then develop the use of these camps in the various practicable ways of strengthening our protective system, making sure of our ground as we go. To this extent I am prepared to endorse the general idea which Mr. Bradner has proposed.

"Let me add that up to the present time this idea has not appealed to the War Department. It has been regarded, I believe, as not conducive to the most effective use of the troops for military purposes or the types of training deemed necessary by the Department."

MOUNT HOOD'S ESCAPE

(Editorial in Sat. Eve. Post, May 21, 1927)

The people of Oregon are indebted to the firmness and good sense of Col. William B. Greeley, chief of the Forest Service, for his refusal to grant a permit for the construction of a cableway to the summit of Mount Hood, supplemented by a tramway, a string of rest houses, lunch rooms, and what not.

Mount Hood is one of the noblest peaks on the continent. It is perhaps the most splendid scenic heritage to which Oregon has fallen heir. Its unspoiled grandeur is a far greater asset to the rank and file of Oregonians than they could hope for in a commercialized mountain disfigured by eruptions of hot-dog concessions, blatant advertising signs and catchpenny souvenir shops.

Colonel Greeley's decision was all the more commendable because the petitioners had influential backing and offered to turn over to the Government a fixed percentage of their profits. Had the project been carried out it would have inevitably stimulated tourist business and have attracted thousands of paying visitors, desirable and otherwise, from distant points; but the chief of the Forest Service was unquestionably right when he said: "Peaks like Hood, Shasta and Whitney, preserved and revered as Nature made them, represent one of our greatest assets. And I cannot but believe that the aesthetic or sentimental value of such outstanding natural features would be impaired through subjecting them to this type of development.

The Forest Service cannot be fairly charged with having exercised its powers arbitrarily in arriving at such decisions. It has more than once made liberal concessions to local and commercial sentiment; and when it has erred it has erred on the side of tolerance. If there is to be any alteration in its policies governing such matters, we should like to see them stiffened rather than relaxed. So much of our scenic beauty is at the mercy of commercial interests, and they have disfigured it with such pitiless bad taste, that we must place all the more reliance upon the protective powers of the National Government to preserve unspoiled the wild areas that are under their jurisdiction.

To most of our city dwellers open country is a new world which had remained undiscovered until the advent of the motor car. Millions have a sincere fondness for rural and mountain beauty who have not yet learned either how to treat it or how to enjoy it to the full. It may take them a generation to learn that hot-dog stands, soft-drink signs plastered over the landscape, funicular railways, tourist litter and the wholesale destruction of wild flowers add nothing to Nature's loveliness; but there are so many teaching agencies at work that the dumbest will be taught in time.

ARTIFICIAL RESEEDING OF SOUTHWESTERN RANGES

By D. A. Shoemaker, - D 3.

Many Forest officers and stockmen appear to have the idea that there is some wonder forage plant, if only it can be discovered, that can be planted on the ranges in which they are interested and that will grow, increase, and always produce an abundance of forage regardless of adverse climatic conditions and abuse by grazing. Experiments in the Southwest to date in sowing forage plants, native or foreign, have been failures either because of (1) negative results or (2) too high costs to be economic.

These experiments have included the determination of species of trees best adapted to grow under the conditions encountered in south-central New Mexico that would retard the drifting of sand on depleted ranges and provide windbreaks and shade trees.

Tests of seeding slender grama, hairy grama, filare, and Russian thistle on semi-desert range at the Jornado Range Reserve have shown negative results.

Chinese elm, chinese pistachio, and evergreen athel were planted near the Jornado headquarters in 1923 and were watered regularly whenever moisture conditions were not favorable to growth. Climatic conditions were severe in 1923 and 1924. By the fall of 1925 the elm showed a survival of 10.3 per cent and had made an average annual growth of about nine inches, the pistachio a survival of 9.5 per cent with an average annual growth of but two inches, and only 5 per cent of the athel was alive.

Early tests of several species of native plants on the Santa Rita Reserve were failures. The plants of PHORMIUM TENAX, Kudzo vine, PUERARIA THUNBERGIANA, and PORTULACA AFRA which survived the extreme drouth of the spring and early summer of 1923 died during 1924 from the cold winter and continued drouth even though they were watered artificially.

Experiments in the cultivation of 13 native forage species have been made at the Southwestern Forest Experiment Station. Four of these show promising results, six have produced a thin stand, and three have been failures.

While studies so far made have been discouraging, efforts will be continued to find some hardy species which will be successful and increase the forage crop or serve in erosion control. Plans are under way for testing Russian Mulberry at the Jornada and desert willow at the Santa Rita. Whenever seeds or plants of promising species can be obtained tests will be made especially on the semi-desert ranges of the Jornada and Santa Rita. Artificial reseeding in the Southwest has been discouraged but NATURAL REVEGETATION of our depleted ranges has been very promising generally.

FROM MAVERICKS TO MILK

(Clipped from article by J. S. Maverick in "Farm & Fireside" for May, 1927)

Sometimes I wonder what my grandfather Maverick would say if he could see my brother and me here producing Certified Milk on a little piece of land right in the heart of the old cattle country amd making a good profit.

My grandfather's name was Samuel A. Maverick. The word "maverick," meaning an unbranded steer, originated on this ranch. He had a hand who was too lazy to brand all the steers, so when one wandered in without a brand the neighbors would say, "It's a Maverick."

You could walk pretty well the whole 130 miles from San Antonio to the Mexican border without getting off his land.

McCARTHY NAMED DIRECTOR OF NEW MIDWESTERN FOREST EXPERIMENT STATION

Mr. E. F. McCarthy, has been appointed Director of the new Ohio-Mississippi Valley Forest Experiment Station, and will at once take active charge of the work of getting the Station established. The new station is expected to be on an actual working basis within the next few months. Accompanied by E. H. Clapp, Chief of Research, Mr. McCarthy is now making a study of the Ohio-Mississppi Valley region to determine the most desirable location for the Station headquarters.

The new station, provided for by Congress at the last session, will undertake the study of methods of growing and protecting timber crops, particularly for the benefit of farmers, as well as of the problem of putting badly denuded cut-over lands back into a productive state. The station's field of activity will cover Ohio, Indiana, Illinois, Iowa, Missouri, and western Kentucky and Tennessee.

For the past six years, Mr. McCarthy has been serving as a silviculturist and as assistant director of the Appalachian Forest Experiment Station at Asheville, N. C. He is a native of McLean, New York, and a graduate of the New York State Normal School of Courtland and of the University of Michigan, having been awarded the degree of Master of Science in Forestry by the latter institution. He was engaged for a time in lumbering operations in northern Michigan, and later was employed by the State Forestry Department of Ohio. From 1911 to 1920, Mr McCarthy was employed by the New York State College of Forestry at Syracuse, and three and one-half years of this period were spent in teaching at the New York State Ranger School at Wanakena, New York. He was engaged in a study of cut-over lands in Algoma, Ontario, in 1920-21, for the Canadian Commission on Conservation.

Mr. McCarthy is the author of numerous publications on forestry practices in the Appalachian region. He has spent much time in the study of fire damage and the relation of forest fires to weather conditions, and has made intensive studies of yellow poplar, oaks and other important hardwood trees of the Appalachian region, many of which are also important in the Ohio Valley.

NEBRASKA PLANTATIONS BURNED BY LIGHTNING FIRES

On April 30, a dry lightning storm passed over the Nebraska Forest covering a belt about 3 miles in width. Seven fires were set in the plantations and 2 west of the plantations, and numerous fires were started outside the boundary. This is the first record in the 25-year history of the Forest of any considerable damage resulting from dry lightning storms.

The crew from the planting camp, which was located three miles from most of the fires, was on the job first and was soon followed by a crew of 25 men from the Bessey Nursery, 6 miles distant. The fires were held to a total of 500 acres, and the loss amounted to $7,500. In addition several thousand acres of grass land were burned over, but this is not of great importance since the new grass has already started. The wind was not severe, and it drove the fires away from the main body of the plantations and the older trees. Most of the trees burned were planted in 1923 and they had formed an excellent stand. At the nursery and in the places where the older trees are, a brisk rain fell, so that no fires were started.

This was the first fire in the plantation since 1910. In that year a prairie fire, which originated 65 miles west of the forest boundary, destroyed about 300 acres of partly stocked plantations, the result of some of the earlier experimental work.

The lookout, Mrs. Ritter, was kept busy reporting fires, and after knowing that crews were on the way, rushed down from her tower with a shovel and put out a fire which had been started about one-eighth of a mile from the lookout. This fire would have done considerable damage in the old trees before crews could arrive, if she had not been so prompt in extinguishing it.

THE WEST FORK OF THE GILA, NOW AND A CENTURY AGO

By Fred Winn, Coronado.

In all probability, the first white men to invade the fastness of the upper Gila were James Pattie and a party of Kentuckians on a beaver-trapping expedition in the midwinter of 1825. Fortunately, Pattie left an intensely interesting account of his wanderings in the southwestern wilderness of one hundred years ago. Pattie's "Personal Narrative" throws some illuminating light on conditions in the vicinity of the Gila River, before the white man brought his so-called civilization into the region. Pattie and his party first encountered what is now known as the West Fork of the Gila, in December, 1825. He says: "The next morning accompained by another man I began to ascend the bank of the stream to explore . . . the first day we were fatigued by the difficulty of getting through the high grass which covered the heavily timbered bottom." If Pattie could only see it now!

This same West Fork of the Gila, where Pattie first set foot, is now within a brief one hundred years, a boulder-strewn stream, where countless cattle have lived and wandered and died since the white man first brought his herds of domestic cattle, in the early eighties. There is now scarcely a vestige of grass for miles, in what Pattie described as the "heavily timbered bottom" and even the cottonwoods and willows have been eaten off or trampled under foot by the constantly moving cattle. The innumerable canyons and arroyos which are tributary to the west Fork of the Gila are deeply scoured by flood waters due to the grazing off of the adjacent hillsides.

Twenty-five years ago, when the writer first saw the West Fork, conditions were worse, if anything, than they are now. The irreparable damage was done when cattle were first crowded on to the range between the years 1885 and 1895. Nat Straw, an old-time prospector and trapper, informed the writer that on his first visit to the region in 1876 (fifty-one years after Pattie), trout could easily be taken where now there is a sluggish and unshaded stream, filled from bank to bank with flood waters during the summer rainy seasons. The pity of it is that the West Fork of the Gila River is still within an unsettled and undeveloped region. The damage has been done, not by extensive cultivation or by stock owned by many settlers or farmers but for the most part by individual owners of large herds. The Forest Service has long been attempting to better conditions by reducing the size of the herds and by better distribution, but the damage has been done and the remedy, if effective, will never bring the West Fork back to its prestine glory.- From "Science" July 2, 1926.

PROGRESS IN THE WOOD PRESERVING INDUSTRY

By R. K. Helphenstine, Jr.

The wood preserving industry in the United States continues its steady growth. The statistics for the year 1926, the latest that have been compiled, show that at the close of the year there were in existence in this country a total of 187 plants for the preservative treatment of wood in various forms. During the year 14 new plants were constructed. The following figures show the amounts of the various classes of material treated in 1925 and 1926:

Class of Material	Quantity Treated	Cubic feet
	1925	1926
Crossties	187,691,733	187,963,614
Poles	42,204,413	49,511,088
Construction Timbers	27,992,452	31,147,287
Piles	9,636,747	12,420,977
Wood Blocks	3,408,489	3,689,424
Cross-arms	621,705	1,344,406
Miscellaneous	2,918,999	3,245,283
Total -	274,474,538	289,322,079

Of the total of 62,654,538 crossties that were subjected to treatment in 1926 a total of 2,434,307 were lodgepole pine, and it is interesting to note that fully 80 per cent of them were cut from National Forest timber.

RECREATION AND PLANTING ON THE WICHITA

A recreation plan for the Wichita Forest is now being worked out. The City of Lawton last year completed a dam at Lost Lake which impounds 33 acres of water for a bathing beach, but no facilities for bathers have been provided. The plan now is to extend this cooperation, and the Lawton Chamber of Commerce is proposing to raise funds to construct a bathhouse and a refreshment stand with a stock of staple groceries and gas and oil. The Chamber of Commerce will be authorized to operate these concessions under free special use permit. In return they will police and maintain the entire camp ground, and will devote all profit from the operation of the concessions to the installation of additional recreational facilities on the Forest.

A site has also been selected for a nursery and a small quantity of seed sowed. A plantation of red cedar was made in 1914 which was very successful and in view of the great demand for this species for planting stock and for Christmas trees which are sold at $1.00 apiece, it is surprising that no further plantations have been made.- District 2.

THE SKILLFUL WORKER

Commenting on the death of H. C. Harter, teamster and packer of the Santiam, familiarly known as "Hart," Supervisor Hall describes a fine type of the devotion and skill that have contributed so largely to the power, prestige, and achievements of the Forest Service:

"For several years Hart packed and teamed for the Santiam. He was a favorite with everybody and was always eager and willing to do a kind deed or favor. He never forgot the crews to whom he packed supplies in the remote parts of the Forest, but carefully carried out all the little commissions given him, and always saw that the men got their mail, tobacco, and other little comforts.

"His was the gentlest soul I have ever known, with a great heart that beat for all dumb animals. He was tireless in administering to the animals under his charge. I have seen him many times staying up nearly the whole night to attend to an injured or ailing horse or mule, and all injuries from a saddle gall to a major injury were carefully attended.

"He was one of the most efficient men the Santiam ever employed. Though of slight build, the amount of work he accomplished was amazing. His ability in handling the work in times of stress brought us through many a tight place without a delay which might have proved very serious."

NAVAL STORES POSITION OPEN

The Civil Service Commission announces an open competitive examination for the position of Superintendent of Naval Stores Field Station, Forest Service. Vacancies in the Forest Service for duty at Starke, Florida, and vacancies occurring in positions requiring similar qualifications throughout the United States, will be filled from this examination.

The entrance salary for this position is $1500 a year. A probationary period of six months is required; advancement after that depends upon individual efficiency, increased usefulness, and the occurrence of vacancies in higher positions. If appointment is made to other branches of the service the entrance salary will be approximately the same.

Applicants must show that they have had at least two years' experience in naval stores work or in lumbering or forestry in the South. Credit will be given for forest guard or ranger experience, surveying or other forestry work, and for educational training above common school.

Applications must be on file with the Civil Service Commission at Washington. D. C. not later than June 11, 1927.

A FUGITIVE FROM JUSTICE

The Fire Season seems to have crept up on us a little early this year, and with alarming vigor, reports the Datil Bulletin. We have had four fires to date, all Class B, and man-caused. No convictions. The last fire was on the Elk Mountain District and burned about 10 acres. It was started by sheepherders. It seems that the camp tender had gone ahead of a band of sheep to establish camp and had built a fire, then he went out on the hill to meet the herder with the sheep. The high wind blew some of the flame or sparks into dry grass near the fire and it was "off". The herder and camp tender both rushed to the fire and worked for a while trying to whip it out. They were almost successful but another gust of wind took it away from them again. When it broke loose the second time the camp tender who had started the fire picked up a canteen and pulled out because he knew that he would be arrested as soon as those D--Rangers got word of it. The last heard of him he was heading for Arizona. So far we have been unsuccessful in apprehending him. Their beds and all the camp outfit were consumed in the fire. -District 3 Daily Bulletin.

A FUGITIVE NO MORE

The Datil sheepherder mentioned in yesterdays' issue was apprehended by District Office sleuths on a valley ranch south of Albuquerque. The herders employer advanced him the much needed costs of extinguishing the fire, $28.59, and the herder is now understood to be enroute back to the band of sheep he so hastily deserted when the fire got away from him. - District 3 Daily Bulletin.

A MOTION IS MADE AND SECONDED

The articles by Hurtt in the Service Bulletin for March 14, and by Garver in the issue of April 18, have also set us a'longing for an up-to-the-minute low-down on the Halsey plantations. If the motion has not yet been declared carried we'd like to voice our sentiments in favor of asking Jay Higgins to loosen up and tell us what has happened to all the pines planted during the dark ages, when men were men and we were members of the planting crew and trees grew even when planted root-side up -- not to mention the sandhill lizzards.

E. H. Frothingham,
C. F. Korstian.

PUBLICITY

BREVITY IS THE SOUL OF WIT AND NEWS SUFFOCATES IN A MOB OF WORDS. This is the theme of an editorial on publicity which appeared in the Washington Post and gives rise to the question, why is an editor? The editorial, in part, reads as follows:

"The 'power of the press.' sometimes underestimated by statesmen and criminals, seems to be more thoroughly appreciated by business organizations and Federal departments than ever before. The consequence is that the publicity man has developed into a high-grade 'professional.'

"Twenty years ago the Federal departments were prolific sources of news for the reporter or correspondent who could 'make the rounds' of the departments every day. That, however, became a task beyond the power of any one man. Then there was developed a class of journalistic specialists in Treasury news, Army and Navy news, and all other governmental news. Now all that is changed. The department without a press agent is a back number. Every one of them has expert writers who prepare copy by the ream for the information of the public through the medium of the newspapers.

"The government Departments are not alone in this means of reaching the public. Practically every association and organization of business men represented in Washington is served by a 'publicity man.' Whether organizations are altruistic or simply after the coin,' it is all the same. Publicity is what they are after, and they get some of their ideas across the copy desk in the newspaper offices, but not as often as they might if they would strive for QUALITY instead of quantity.

"There are scores who turn out 'literature' by the ream, all of which is as free as the air to the newspaper that is short of material to fill its columns. The trouble is that 'there ain't no such animal' in the present age. Every newspaper has to decide what not to print in dealing with the deluge of propaganda". From "The A. C. E.", January - February issue.

ROAD USERS HELP PAY THE BILL

By T. W. Norcross, Washington

During the year 1926 the total receipts for the whole country from registration fees, licenses, etc. on motor vehicles amounted to $288,282,352. Corresponding receipts from gasoline taxation were $187,603,231. This makes a total of $475,885,583 paid into these two funds by the users of the roads. In other words the users of the roads paid something like 40% of the total amount expended for road construction and maintenance during the year.

In the eleven Western States the total receipts from registration fees, licenses, etc. amounted to $26,795,071 and this was apportioned as follows:

State Highways -	$14,380,703
Local roads .- -	9,243,032
State and County road bonds - -	$576,803

From taxation on gas the net receipts in these eleven Western States were $31,376,254. Of this amount, $20,406,777 was allocated to the construction and maintenance of State Highways and the balance to the local roads. Figures on the total expenditures for road construction and maintenance in these eleven States are not now available to me but it would be interesting to compare the total received from the road users with the total expenditures both for construction and maintenance and for the State and County roads. As a whole there seems to be a marked tendency through the country to charge the entire maintenance cost to the road users and to decrease each year the amount charged real property for construction, particularly the construction of State roads.

PRESS SERVICE MATERIAL

Once a week the Press Service of the Department of Agriculture gets out a mimeographed clip sheet of short items on agricultural subjects under the general title "Page, Line and Paragraph." This is distributed to weeklies and semi-weekly newspapers outside large cities and county seats, - a field which is not ordinarily reached by the press releases issued by the Department. "Page, Line and Paragraph", therefore, offers an opportunity to reach the farmers in their "native haunts" with information on farm forestry and the like.

In addition to the "Page, Line and Paragraph" service, the Department puts out a clip sheet of somewhat larger items, which is given quite general circulation, and recently the Associated Press started a column of "Hints for Farm and Home" in connection with its weekly farm feature service, supplied to about 1,000 member papers. All of these supply an outlet for any number of short news items. The Branch of Public Relations is anxious to make full use of these opportunities, and consequently will welcome material suitable for working up into short, snappy paragraph items. - C. E. R.

Service Bulletin

U.S. FOREST SERVICE
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"WITH OR WITHOUT?"

By W. R. Mattoon, Washington

Have we foresters been awake or asleep on our job of how to "sell" the growing of timber as a profitable enterprise to the farmer or other owner who can cut his timber?

Take timber values, for example. About his wheat crop the farmer thinks in terms of the grain threshed, sacked and delivered at the railroad, his cotton crop picked and hauled to the gin, and his potatoes dug, cleaned and delivered to the shipping point. His produce is sold WITH, or plus, his own labor, and that of his team or gas engine. In the same way many farmers think about their timber products - cordwood, crossties, poles, and logs, but foresters usually talk about STUMPAGE values in spite of the fact that most farmers do or should do their own logging. Why not encourage the farmer to think more and deeper along the line of the MARKET value of his forest products?

Granted that stumpage values are useful and indispensable, especially to the forester and statistician. Are they an adequate goal for the farmer? During slack time in the winter season the farmer can put in his labor and that of his teams in harvesting his timber to good advantage, thereby materially increasing his income. Furthermore, he is in a position - or with the aid of the State forest-workers and county agents CAN put himself in a position - to do a much better silvicultural job of his cutting or his logging than the average sawmill man or other buyer could ever do. This is because of his interest in the future of the land.

The gross return per acre per year, with the land rental and the labor of man and team figured in as essential elements of the value of the product, more adequately represents the actual value of the farm woods than a mere statement of the value of the timber in the standing tree. The following is offered as an average estimate of the gross returns to the farmer in growing southern pines as a crop:

YEARLY GROSS RETURNS PER ACRE FROM
WELL-MAN-AGED STANDS

An acre of shortleaf or loblolly pine will grow an average of 500 board feet of logs and one-half cord of wood yearly.

This crop cut and delivered at the mill or railroad is worth an average of $7.50.

The FARMER thus GETS an average gross money return per acre yearly in value of timber, land rental, and pay for labor of himself and team amounting to $7.50.

In tabular form this calculation would appear thus:

GROSS MONEY RETURNS PER ACRE PER YEAR:

500 board feet at $10 per thousand feet delivered at the mill or railroad	$5.00
½ cord of wood, delivered	2.50

Itemized as follows:

1. Value of timber grown (on stump)	$3.00
2. Use or rental of acre of land	.60
3. Labor of man and team in cutting and hauling the product an average of 2 miles	3.90
Total	$7.50

With his crop of wheat or cotton, the farmer can reckon up his money outlay for taxes, interest on the land investment, seed, fertilizer and labor, and arrive at his net profit. Likewise, he can calculate the net profits on his timber crop. The point here is that timber is on a par with the other farm crops and such a calculation is alike applicable to all of them.

My answer to the question raised in the first paragraph is that we foresters have not been fully awake in the matter of reaching farmers and other small timber land owners who market or should market their timber in the form of rough woods products. From the standpoint of getting this class of woodland owner to be "woods minded" we have not made the right kind of appeal. The antiquated idea that a crop of timber is a life-time job is persistent. Why should we not use more psychology and less academic logic?

The farmer in the above example gets an average yearly gross income of $7.50 per acre from his well-managed woods. A large part of his profit from his regular crops comes from his labor. Why not get him to thinking in the same terms about his timber crop?

ANOTHER ANIMAL STORY

By Albert Wiesendanger, Mount Hood.

During the month of February, while on detail in Douglas County visiting the various high schools and grade schools presenting a program on PREVENT FOREST FIRES, IT PAYS, I arrived at the grade school at Olalla, Oregon. While at the door of the school, waiting for the principal of the school to answer my knock, I noticed just over the door near the glass transom a brown pigeon walking back and forth trying to get into the school room. After making my wants known to the principal of the school, who had in the meantime answered the door, I next asked him what the pigeon was doing there. I was surprised when he replied, "Why, that belongs to one of the boys in the school. He follows the boy every day a mile and a half to school and then roosts outside of the door until school is over and then follows him home again. If at any time the door of the school room is left open or if the pigeon sees an open window, he flies inside of the school room and roosts all day on George Washington's picture which hangs in the school room." Fire Warden Harvey Brown of Douglas County, who was with me at the time, as well as myself, could hardly believe this tale, but upon investigation both at the school and at the store near the school, found it to be a fact. The only way it was possible for the boy to keep the pigeon away from the school was to have his parents lock the pigeon up before he left home.

Morris Shepard is the boy's name and he is in the third grade. The principal of the Olalla school further stated that any time Morris saw any boys throwing rocks or bothering birds or animals it hurt him and he quickly reported the matter. He evidently has made a pet of the pigeon as a boy will do with a dog, though this is the first time in my experience that I have come across anything like this.

Just as soon as school closes and the

children leave the school building, the pigeon will fly down the road in the direction that Morris would go, keeping ahead of him and then flying to the road. Just as soon as the boy gets close to him, he will again fly on several rods ahead and wait, keeping this up until home is reached.

NIGHT FIRE FIGHTING

By Sam R. Broadbent, Unaka.

I have read with interest what Beatty and Woods have had to say about fighting fire at night. I have also often heard Woods express himself on the subject.

After leaving D-1 under a safe cover of snow in February, 1926, I arrived on the Unaka to get ready for the Spring fire season, which was due to arrive somewhere near March 15. The Rangers were busy conditioning tools - they were strange looking objects, asphalt rakes, potatoe rakes, bushhooks, pitchforks; of course there were axes, grub hoes, and so on. Added to these were many lanterns. The globes were cleaned and wicks trimmed. Lanterns were needed because they "give 'em (the fire) ----! at night." They had been fighting fire at night for many years and all agreed it was the best practice in this locality.

In May I had the misfortune of being on a railroad fire caused by locomotive sparks. The fire started at 1:15 P.M. and by 7 P.M. had covered 3000 acres. Of this, 150 acres were National Forest land. The Forest Service crews, the Hassinger Lumber Co. crews, and the Norfolk and Western section crews controlled the fire by nine o'clock that night, and the rest of the night was spent in "mopping up", to make the fire safe before the danger period of the coming day.

Of course, there was not the heavy down timber or the isolated localities of D-1, but there was a "jungle" and many snags.

The biggest item for effective night work on the Unaka is adequate lights. Lanterns are not highly efficient. At the Guard Camp held on the Allegheny Forest in April, a crew equipped with miner's carbide lamps and caps built a fire line at night under average Allegheny conditions. All of the men were impressed by the lighting facility afforded by the carbide lamps worn on their heads. Dean Hosmer of the Cornell Forest School used one of the lighting outfits and "did his stuff" with the rest of them.

Recently we have purchased a flare light manufactured by the Carbic Mfg. Co., of Duluth, Minn. This flare light weighs 30 lbs loaded, and can be back-packed by means of a pack board. It will burn 5 hours, giving a 4,000 candle-power light. Heavier lights producing more light are also made by the same company. The light burns "Carbic cakes" which are composed of compressed condensed carbide. It will probably require a man to operate it, but if the crew's efficiency is increased 30 percent the extra man is worth his keep. We are going to give this light a thorough try-out before we "crow" very much, however.

Electric lights would be good, but so far I have not been able to get a line on a good powerful light that did not need a storage battery (wet cell). The dry cells now manufactured for an adequate light are not strong enough, will not last long enough, and are too expensive. Wet cells are obviously difficult to handle in the woods, since the acid spilling out would play havoc to the equipment, and the clothes of the men that handle the battery would soon resemble those of "Gunga Din."

I understand the State of West Virginia is experimenting with an electric miner's light, and this is well worth watching.

"Yas, the fire burn here as hard at night as she do in the day, sometime."

SECRET OF WOOD STRENGTH

Wood strength does not wholly depend on the bulk and weight. It is a matter of 2/25,000 or 7/25,000 of an inch in thickness of the wall of the small wood fibers. In general the smaller the diameter of the wood fiber the thicker the fiber walls. The thicker the fiber walls and the more numerous the fibers, the stronger the wood, provided the fibers are equally distributed. A square inch of hickory which is particularly adapted to withstand stress contains a vastly greater number of fibers than a square inch of grape vine which cannot hold up its own body but which carries a great deal of water through its large ducts.

Thin fiber walls (weak walls) are found in the grape vine but the grape vine has the largest fibers. If two kinds of wood have an equal number of the same sized fibers, but in one the fibers are collected in bunches and in the other they are continuously and uniformly distributed the latter would be the stronger. So it follows that any wood with small fibers uniformly distributed is strong.

How to grow weak woods strong and strong wood stronger may be the next discovery in this interesting problem. – From the New York State College of Forestry News Release.

CAN WE HELP HIM?

Mr. Butler of the American Forestry Association sends us the following letter, with the suggestion that some of our field men might help Mr. Plumer.

"We are forming an archery club here and have struck a wall! in that we are unable to get good arrows.

We have some imported from England and a few factory made in U. S. but all are poor quality. Yet we pay $25.00 per dozen.

Do you know of any Indians who will make us up good arrows. If you can find such persons please have them get in touch with me at once.

We use about 100 per week.

(Signed) L. A. PLUMER
Deputy Commissioner
State Department of Game and
Fresh Water Fish, Osprey, Florida."

SCRIBNER VS. INTERNATIONAL 1/8" RULE

By E. J. Hanzlik, D. – 6.

Now and then in publications on growth and yield studies, there have appeared tables and references giving volumes of trees or stands in board feet by the International 1/8" Rule. However, the relationship of a scale or an estimate between the regular Scribner and the International 1/8" rules is rarely seen and is little known by the average forester.

This relationship between these two rules was made possible by the measurement of 186 second-growth yellow pines in the Whitman and Wallowa Forests, the computations being made in the District Office. The following figures give at a glance the volumes obtained when the trees were scaled by these two different log rules:-

Log Rule	Whitman Forest	Wallowa Forest	Total Scale
Scribner Rule	26,025 B.F.	36,170 B.F.	62,195 B.F.
Int.1/8" Rule	33,275 "	46,115 "	79,390 "
Diff.Int.1/8" over Scribner	7,250 B.F.	9,945 B.F.	17,195 B.F.
Scribner under Int.1/8" Rule	21.8%	21.5%	21.7%
Int.1/8" Rule over Scribner	27.9%	27.5%	27.6%

Another set of figures based upon the diameters of trees, was compiled whereby the data showed that the greatest difference between the two rules was found to be for trees in the 14" and 16" diameter classes, the International 1/8" Rule giving a scale amounting to 33 per cent higher than the Scribner, based upon the latter. Conversely, the Scribner scale was 25 per cent lower than by the International 1/8" Rule. A brief tabulation by 4-inch d.b.h. classes brings out this relationship clearly:-

D.B.H.	% that Scribner is Under Int.1/8" Rule	% that Int.1/8" Rule is over Scribner Rule
8	10	10
12	24	31
16	25	33
20	23	30
24	18	22
28	16	19
32	15	17
36	14	15
40	7	8

Variations in the height or the number of logs for the same d.b.h. class had no appreciable effect upon the per cent of difference, this being practically the same for tall trees as for short ones in the same diameter class.

It has been shown by a mill scale study conducted in a number of representative yellow pine mills in Idaho, that a lumber output equivalent to the International 1/8" Rule log scale is being obtained when the sawing conditions in the mills are done under average good sawmilling practice. Some mills showed a lumber tally above the International 1/8" where the milling practice was exceptionally good.

In other words, it appears that a careful cruise in western yellow pine stands by the International 1/8" Rule should closely approximate the actual lumber tally where the sawing methods are done under what may be termed average good sawmilling practice.

OUR UNIFORM SECTION

Although, about twenty years ago, I had the responsibility of selecting the material and cut of the Forest Service Uniform, I haven't had much to say about it since, perhaps because I thought it wiser to let the uniform speak for itself. My old friends in District 6 will remember that I was always lukewarm on the compulsory wearing of a uniform, partly because I realized and still realize that for many, and perhaps most of the jobs of a Ranger, a uniform is neither economical nor satisfactory, or perhaps even appropriate. On the other hand, there are many occasions when the uniform is just the thing.

We hear of instances where members of the Service have been mistaken for bell-hops, taxi-drivers, messenger boys, etc. While I do not doubt that such instances have occurred I venture to say that they are small in number when compared to the occasions where they have been recognized, by an information seeking public for just what they are, Government officers. Further, if the hat and shirt worn with the suit were a little more uniform instances of mistaken identity would be fewer.

As to whether the higher-ups appreciate the possibilities of the uniform, why should we worry? Whatever may be the custom in San Francisco, here in Los Angeles the entire masculine portion of the office force, including the Supervisor, wear the uniform as a matter of course, and I have yet to hear an unfavorable comment from the public, now have we been embarrassed by being mistaken for something other than Forest officers.

As to the cost:-

The Immigration Service was recently ordered into uniform and given an increase of $100.00 per annum to take care of the cost. If such action on the part of the Department of Labor is legal, why not Agriculture? If so, why not take a vote of the field force as to whether or not the wearing of the uniform should be compulsory, at such time and on such occasions as determined by the Forest Supervisor, provided that the salary of all officers be raised $100.00 a year to offset the cost? If 80 per cent or more of the Field personnel endorse the idea -- make it compulsory.

What say you? - G. H. Cecil - Angeles.

Riding along a day or two ago, I occupied myself by composing in my mind a few sharp remarks, not to say a tirade, in regard to the uniform (alleged) of the Service, but upon my arrival home, I found that Ranger Beals, of the Rio Grande, had got in ahead of me with his very pertinent article on the subject.

However, I am going to try to second him to the best of my ability, because my ideas are fully in accord with his, on the question of the uniform.

Let us do one of two things:

Have a uniform
or
Not have a uniform

Personally, I am strongly in favor of having one.

Recently I compared two photographs. One was of a group of about thirty Forest officers, clad in what they fondly believed to be the Uniform of the Forest Service; the other was a group of the personnel of a certain State Constabulary. "Comparisons are odious". In the Forest Service picture, the results of personal choice in design were painfully and almost ludicrously apparent.

The hats ranged from zero to two gallons capacity, some trousers had cuffs, some had none, some breeches were laced, and some buttoned at the knee, coats were of two styles, the position of the small uniform badge varied in every case (where one was worn). Some very nobby effects were shown in ties and other neckwear, and a true grace and abandonment in draping the coat (unbottoned) about the torso was illustrated. Some of you who wore a uniform ten years ago, please note.

Now glance at the other picture. Every uniform the same, down to the minutest detail, including material. The badge, belt, chevrons, and other details in exactly the same position on every uniform. A trim looking outfit.

A wail will go up at this point that the Forest Service is not a military organization. True, but if there is any man in the Service who thinks, that because he does not bear arms, he cannot wear a neat, trim, standard uniform, he should have something done about his "inferiority complex."

I have in mind about six uniformed organizations that have gained at least a modicum of reputation for getting things done, and the fact that their personnel has not been allowed to choose the design of the individual uniform, has not lowered their efficiency to any appreciable extent. These are the United States Army, Navy, Marine Corps, Immigrant Service, Porto Rican Constabulary, and the Royal North West Mounted Police.

Doubtless there have been, and still are, in these uniformed organizations, men who rant and roar about the looks, fit, and discomfort of their uniforms, but I ask you what would be the result if each could incorporate in his garb, such ideas as appealed to him? Look around you at the next meeting of Forest officers, and you will be able to answer the question.

The United States Forest Service is a great national organization, with varied duties, some of which at least approach those of constabulary. The dealings of its personnel are largely with the public. Every man in it represents the Government. The uniform of its members should and does command respect wherever encountered, and it should be of such distinctive design as to be unmistakable, and it should be worn in such a manner as to reflect credit on both the man and the organization. No doubt it is the MAN that matters most, but certainly tne uniform marks him as being worthy to belong to the organization. And furthermore, after that man and others have passed on the uniform will still be the mark of a distinctive Service.

I have heard Forest officers remark that when they mingle with the public for the transaction of business, they would rather be clothed other than in a conspicuous uniform. If there is any man who feels ashamed or unduly conspicuous transacting the business of the Government of the United States, while wearing the prescribed uniform of the organization to which he belongs, I should think that he would sever connections with that organization.

I want to second the motion of Ranger Beals that we have standard uniform, one material for field, and one for dress and office work, and that they be STANDARD in every particular.

It does not matter how they are acquired; whether the Government furnished them, whether they are bought ready made, or whether they are tailor made, a certain specific design should be adhered to, not only in general, but in detail. Certainly both trousers and breeches should be a part of the uniform, but either should be worn as the occasion demands, and doubtless, for field trips, and field work, "Hyers", "Levis", and "Stetsons" should often take the place of the uniform.

The Service has standards for nearly everything; why should not the uniform that enables the public to identify its personnel, be of standard design. What a fine layout we would have, if the policy regarding uniforms also applied to improvements, fire tools, signs, etc.

"It is to laugh". - J. R. Ahl, White River.

Uniforms and insignia always strike me as a sort of swagger or swank. When I was a kid the family who could afford a liveried footman was in "high G". When you could keep a man in livery you were putting on real class. From what I can learn a great many people feel the same way about the Service uniform. They either feel that we are trying to be "different" or are trying to "swagger" more or less at their expense. Of course, they regard us as sort of liveried and lackeyed servants employed for their especial benefit. The latter viewpoint is not infrequently taken by tourists, campers, summer home permittees and the like, while the stockmen, loggers, settlers and other users regard the uniform from the first viewpoint.

I know this from experience: if I am to talk at a school or club, to check up on fishing or hunting licenses, or to work at a camp ground or recreation area, the uniform helps put it over, but if I've got to get dope for an appraisal or work around the logging camp I'm "Mr. Ranger" until I shed the uniform. Once its off I get my dope easier because the men talk more and with less restraint. In other words, the uniform throws them on the defensive while the lack of it makes us just ordinary fellows discussing the business of the day. The same thing applies to the stockmen. A uniform at a meeting of stockmen leaves you on the "outside" and this after four or five years' acquaintance. The same fellows worked with one or two at a time "on the range" will give close contact.

My conclusions are that where the uniform is needed to add weight of authority to what I have to say or where it will add prestige to what I have to do I should wear it, but where these two things are not needed I would do better to leave it at home. I'm not anti-uniform, because from a personal point of view its the cheapest GOOD clothing I can buy. Dollar for dollar it has other materials and suitings faded. - Lee P. Brown, Crater.

Uniform - as per Webster - "A dress of the same kind, by which persons are purposely assimilated who belong to the same body."

Assimilate - same source - "To make like."

There is, I am quite sure, something the matter with this Dictionary; its definition is not according to all the observed facts. Our own uniform neither assimilates those who belong to one body, nor is it a dress of the same kind. Are long pants similar to breeches? Or leather puttees to wrapped ones? Yet one can be uniformed according to the gospels and wear either of each. He can stick his long pants into wrapped puttees if he wants, and the seat of those same pants can and do sag half way to his knees - enough to conceal a carrying case. But it's according to the Holy Ghost, and the whole can be climaxed, or, as it were, headed by nearly any sort of hat or cap except a peanut scoop or beaver derby. It doesn't look right to me. It's that optional series which lets a fellow so misguidedly expose his malformations. I think that part should be removed. I think that the uniform should be a dress uniform, that there should be no idea at all of its being used where a suit of rompers would be better. You know where I mean. As it is, the thing is a monstrosity and an eye-sore. It looks like a suit of clothes, but not much like it. It's not good looking enough to go calling in, and it's not tough enough to wear in the brush - even a little brush. It shows talcum powder nearly as well as blue serge and soup spots it abominably.

What is all the objection to a uniform which doesn't look like an out of date suit of clothes - or any other clothes? Style - I mean current style - need have nothing to do with it, if the thing doesn't resemble street clothes particularly. It's here the present uniform falls down. There are enough optional features about it and its vague resemblance to "civies" let the dictates of London influence it, especially in the matter of hats, and damn it as provincial. Nor would this be bad if there was something about it to brand it distinctly as a uniform, for obviously a uniform can be anything it pleases. But there is no such thing. The buttons? They can't be identified twenty feet away, except as something extraordinary.

I suggest that a professional designer be called in and this because I believe justly that a uniform is distinctly worth while, and secondly that no definitely constructive designs are the least bit likely to come from the field. And if we haven't sense enough to tuck our shirts in, much less think up a plausible uniform.

As to the cost, if the uniform will take the place of other clothes, as it obviously should, what of it One can't go naked - its against the law. It's where the uniform is a makeshift and fit for no occasion at all that it is expensive. Some one is going to object here that no uniform can fit all uses. It can't, I guess, be both field and office apparel, but the field of necessity dictates its own clothes. For the rest a uniform should be utterly independent of style (this one is, but gosh!) in that being a uniform and the mark of a service it makes its own style. - Robert W. Putnam, Fremont.

MEMORIAL DAY OBSERVANCE

In accordance with custom, the Forest Service memorial tablet was decorated with flowers and flags for Memorial Day. A wreath of living flowers contributed by members of the Washington Office, and a wreath of poppies, generously provided by the Department Branch of the American Legion Auxiliary, were displayed before the tablet on May 28. The living wreath was then transferred to Arlington Cemetery to decorate the grave of Stanley R. Augspurger, No. 941 in the European Section. Augspurger, it will be remembered, is the only one of the Forest Service dead who is buried within reach of the Washington Office. He was one of the contingent aboard the torpedoed transport Tuscania and was killed after drifting about in the night in a life boat, which was dashed against the rocks on the Irish Coast. His grave represents to us a memorial of all the nineteen whose names appear on the memorial tablet.

Memorial exercises for the 67 members of the Department who lost their lives in the Great War were held at the auditorium of the New National Museum on Saturday afternoon, May 28. The exercises were under the auspices of Federal Post 824, Veterans of Foreign Wars. Dr. A. F. Wood, Director of Scientific Work of the Department, delivered the address, and Major General Anton Stephan, Commander of the National Guard of the District of Columbia, presided. Music was furnished by the Navy band orchestra.

At these exercises Chief Clerk Reese of the Deparment made a report on the memorial for the members of the Department who lost their lives in the Great War. This memorial, in the form of a tablet 14 feet high by 8 feet wide, will be placed in the central part of the proposed new administration building. Enough money has been subscribed for this memorial, but a number of delays have occurred and it will be considerable time before it is completed.

Colorado Pictures in California Publication

D-2 is plumb stuck up to note three familiar Colorado scenes in D-5's new circular "A Forest Fire Prevention Handbook for School Children" and to see California's willingness to let 'em pass for "native sons". - District 2.

Service Bulletin

U.S. FOREST SERVICE
(Contents Confidential)

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SOME EARLY HISTORY

By Will C. Barnes, Washington

Rummaging through the 1906 files a short time ago, the following letter was discovered which so clearly sets forth the intention of the men originally interested in the National Forests as to merit its publication at this time. The letter is addressed to a prominent attorney of Denver, who had been extremely violent in his opposition to the entire National Forest policy and had covered 26 typewritten pages with his criticisms, of which the Secretary answered only the more important.

The Attorney General of the United States had recently rendered an opinion as to the authority of the Secretary of Agriculture to charge grazing fees. The Denver attorney believed this illegal and claimed that the pioneers were entitled to use the public domain free and unhampered by federal agents.

To this Secretary Wilson replied:

"The Attorney General, in rendering his opinion that I am legally 'authorized to make a reasonable charge in connection with the use and occupation of forest reserves,' removed the necessity of my considering your brief and argument against his decision. I only add that, until some coordinate or higher authority decides against the Attorney General, I will feel not only authorized, but morally bound, to make such charges.

"I do not deny the right of the people to use the public lands in common, but I believe that Congress has wisely set aside the forest reserves from the public lands and has thus, to an extent dependent upon the best interests and protection of the reserves, withdrawn them from that common land which is open to unrestricted use of the people. I intend to make the restrictions upon use of the forest reserves as few and reasonable as possible. Consequently, charges as authorized by the Attorney General's opinion, will be made extremely light at first, WITH THE INTENTION OF INCREASING THEM GRADUALLY AS CONDITIONS WARRANT IT AND THE USERS ADJUST THEMSELVES TO THE NEW ORDER OF THINGS."

The Denver attorney also claimed that the attitude taken by the Forest Service in requiring the stockmen to keep their animals from trespassing on Forest land was in direct defiance of the laws of the State of Colorado. To this the Secretary replied as follows:

"It is far from my wish to try to interfere with State laws. Since Colorado has a fence law, stock which strays upon the reserves without evident and inten-

> tional assistance from its owners, may not, as you maintain, make them liable criminally for trespass, but I will in every way legal strive to prevent the intrusion of unpermitted stock."

The Secretary disposed of the claim that Forest officers were not liberal enough in their estimates of carrying capacity and that the Forests would carry more stock than were at that time permitted:

> "I can not agree with you that the forest reserves could carry a considerable greater number of cattle than the Forest Service is willing to permit at this time. If this is the case, however, it will be discovered by careful inspection and the number of stock permitted will be increased to the maximum which will not injure the reserve."

The attorney believed that the denial of permits to persons not citizens of the United States was "unfair" and "un-American:"

> "Your remark, that the restriction of grazing permits to citizens only should be reconsidered, is very worthy of note, and that question will be taken up carefully in connection with a revision of the Use Book, which is now under way."

Evidently agents of the Bureau of Animal Industry had requested the Forest Service to refuse all sheep entrance to the National Forests in Colorado unless previously dipped for scab. This seemed to the Attorney an unjust discrimination against sheepmen using the National Forests, inasmuch as sheep not using National Forest ranges were not required to be dipped.

The attorney also criticized the red tape involved in securing rights of way and special use permits as well as surrounding the sale of free use of timber.

These criticisms the Secretary met in the following statement:

> "The regulation with regard to "dipping" when infectuous disease is discovered on stock permitted to enter th reserve, is a quarantine rule, pure and simple, made for the protection of permittees. If it is unnecessary or burdensome, that fact will be discovered and the rule changed in due time.
>
> "Every effort is being made to devise means for eliminating unnecessary expense and delay in securing rights of way and special privileges within forest reserves. I am confident that in the course of time (except for accident) there will be no unnecessary red tape connected with matters of this kind.
>
> "The same thing is true with regard to the sale and free use of timber. As far as possible an even balance of justice will be maintained between the users of small and large quantities."

The attorney made serious protest against exporting lumber from the state of Colorado, claiming it was enabling the so-called lumber trust to force high prices on the Colorado people and was taking from them a natural resource which they should be able to utilize before nonresidents of the State were considered. He further criticized bitterly the indefinite character of the rules and regulations in the Use Book, claiming they were unreasonable, illegal, and in many instances impossible to understand. These two statements the Secretary disposed of in the following manner:

> "I agree with you thoroughly that timber cut from forest reserves should not be exported from the State when it is needed for local consumption. Since this question is within my discretion, I hope to prevent any improper exportation . The right to permit exportation however, you will find in the Act of March 3, 1905, on page 106 of the Use Book (see marginal note).
>
> "The rules and regulations will be in constant need of revision. They will be made as efficient and reasonable as possible, although they may never reach

perfection, and will certainly never be entirely acceptable to each individual interested in them."

In this same 1906 file were found the papers pertaining to the Civil Service examination of that year for Inspector of Grazing, the only one ever held for this purpose. About 34 men took the examination, and (6th) in the list of those who passed appears the name of William M. Jardine, whose post office address is given as: Experiment Station, Logan, Utah. Mr. Jardine was notified of his success in passing the examination but declined to accept appointment in the Service. Having just been appointed to a position in the Bureau of Plant Industry of the Department.

WHAT IS GOING TO HAPPEN TO AMERICA?

"Of all our resources the most vital is land - soil - the stuff from which the future must eat. The loss of land by needless and useless soil erosion is one of the greatest material injuries that man is doing to his own future. He plows a hillside, grows crops of corn, cotton or tobacco, and after a very few crops the field is ruined. In this way we have already ruined the possible home sites of millions of men.

"We do this because we grow crops for which the land must be plowed, instead of crops that can live and thrive without plowing - tree crops. By an accident of history, agriculture started with annual plants: grasses, wheat, rice, corn, and so on, instead of with trees - date, olive, walnut,. acorn. People have for ages eaten wild acorns and walnuts, as well as the seeds of wild grasses. We need a whole series of new crop trees making food for men and food for live stock, and at the same time holding soil on the hills with their roots.

"America is rich in native trees of great promise waiting to be improved: walnuts, pecans, hickory nuts, pine nuts, hazelnuts, butternuts, beechnuts. More important than these are the trees that may feed animals.

"The acorn-yielding oak may be made to rival corn as pig feed and cow feed. The honey-locust bean may rival wheat, bran, and cottonseed meal as food for the dairy cow. The persimmon is one of the most nutritious fruits grown in the United States, and it drops its fruit for weeks and months, ready for the pigs and turkeys to eat.

"A million dollars invested during the next twenty years in creative research and experiments would disclose the technique for a tree-crop agriculture. The creations and discoveries that would be made would be worth many millions the succeeding twenty years, and billions after that. There is an opportunity for some person to create a world-famous institution and render inestimable service to the American people and to the world at large!"-From an Interview with Dr.J. Russell Smith, As Reported by M. K. Wisehart in the American Magazine for June, 1927.

SUGGESTIONS FOR PROMOTING THE PRACTICE OF RANGE MANAGEMENT.

By C. L. Forsling, Great Basin Range Exp. Sta.

(Extract from Intermountain District Investigative Committee Report)

A number of suggestions were made by the committee to assist in the problem of educational work in range management. It is recognized that better range management is being applied on the National Forest ranges and its results are showing up in improved range conditions. To a large extent this has been brought about by regulatory measures, rather than through education of the stockmen to apply better practice. In many cases, the stockmen appreciate the value of better range management as required by the Forest Service. In spite of this recognition, however, the stockman will not apply the better practices on his own range. This is considered to be due largely to inability to see fairly immediate returns and general tendency to attempt to "get by" without any thought of the future. The suggestions made are for two classes, i. e., the general range using public and the National Forest permittee.

Familiarizing the public with range management by

1. General educational campaign by
    a. Encouraging western states agricultural colleges to give elementary grazing in the agricultural courses.
    b. Encouraging high schools to include grazing in their agricultural courses. (Started to some extent in D-4).
    C. Greater PR activity in grazing. (Grazing education recognized as one of most important PR functions in D-4).
    d. Taking advantage of invitations to address stock meetings by discussing range management instead of administrative problems to a greater extent in the future than in the past.
    e. Wider dissemination of results of experimental work in all avenues.
    f. Demonstration ranges especially in cooperation with stockmen. Go so far as to waive grazing fees on demonstration ranges for a few years providing the permittee will handle range and stock in accordance with detailed Forest Service plan.
    g. More discussion of range management topics in articles in stockmen's magazines.
    h. Working with State Extension people in organizing their range extension programs.
2. National Forest Permittees.
    a. Sending notes on elementary range management principles to permittees, perhaps along with permit when validated.
    b. Sending copies of inspection reports on allotments to individual permittees.
    c. Using enclosures, quadrats, etc. to fullest extent as demonstrations.

FEDERAL COOPERATION WITH THE STATES IN PROTECTION AGAINST FOREST FIRES

Fire prevention and suppression are simply a means to an end. Timber production is the real issue before the American public. Perfection in fire prevention and suppression methods is merely the prelude to the overture of "timber crops on timber lands." Our efforts in bringing about this perfection must not accordingly lead us so far away that we shall forget our main objective and strive by all means to attain it. I am dubious as to whether we are making as much progress in learning how to improve on Nature's way of growing timber, which we all admit is sometimes very unsatisfactory, as we are in improving our forest fire technique. It would indicate sound judgement on the part of those responsible for State forestry activities if some projects other than fire prevention were given a place in the sun at least equal that accorded fire prevention. Surveys of forest resources, utilization of products, studies of growth, yield, and management of different types of woods, and others designed to meet some of the questions crying for answer should be undertaken if possible. One of our good friends recently complained that we were talking a great deal but not accomplishing much in the way of getting forestry practiced on the ground. That is probably due to two things. Perhaps we have not much to say that can be concretely applied in the woods. Then, timberland ownership is not upon a stable basis. The present private holders of timberland are for the most part organized upon the basis of "cut out and get out." They are not interested in their land beyond the harvest stage. A new type of ownership will have to come into the field. That is a fact which we must recognize and there is nothing gained by letting out a wail about it. -From an address by C. R. Tillotson.

BUSTING THE BARK BEETLE

Control work on the epidemic of Black Hills Bark Beetle in the Colorado National Forest is now actively under way. Actual field work was begun May 3 under the direction of Technical Assistant A. L. Nelson. Technical Assistants G. K. Fenger, L. C. Anderson and Rangers L. H. Carr and E. A. Snow have also been assigned to the project. Approximately 40 laborers are now at work.

The infestation is spread over about 118,000 acres of western yellow pine type and is proving more serious than was thought at first. Many trees that are alive with larvae have not yet begun to turn color and careful work is needed to prevent missing them. The control work, however, is moving faster than was anticipated. As the crews become more familiar with their duties, the daily progress increases rapidly. The infested trees are felled, bark peeled, and tops lopped and scattered. The latest reports show that an average of 4.9 trees per man are being treated and costs for labor and subsistence exclusive of equipment and contributed time by Forest officers have averaged $1.08 per tree to date. Costs vary widely according to the size of individual trees and the average cost is brought down by the large number of small 11 and 12 inch trees treated.

Bark peelers of a type suggested by D-1 have proven very successful and have contributed materially to the progress made.

Private owners of forest lands and summer homes are cooperating heartily by cleaning up the beetles on their properties. The owners do the work in accordance with instructions from the Forest officers.

It is planned to push the control work right along until the first of July and it is hoped to knock out the worst of the epidemic before the broods emerge.- District 2.

THE ANSWER TO "WHY NOT COW MONTHS"

By Ernest Winkler, D. 4.

In the Service Bulletin of April 25, 1927, Mr. Sandvig suggests adopting an animal months permit in lieu of the regular season permit as now issued. He suggests that it would be as easy for us, to issue a permit for 600 cow months, valid any time between May 1 and October 31, as to issue a permit for 100 cattle for the same period, and it would be much better for the permittee.

It must be admitted that such arrangement might be better for some permittees, but it wouldn't fit well with good administration or practical range management. The present arrangement tends to encourage all permittees to place their stock on the range the full period in order to secure the full benefit of their privilege. This results in general uniformity of practice by the group of cattlemen using a given unit and enables the Ranger to plan his work on the unit so as to handle it with system and dispatch.

On a large part of the cattle units the animal months plan would result in an endless job of checking and counting. Two or three dozen permittees using a unit would probably have about as many different ideas as to when and how many stock they were to place on the unit. Each permittee, in meeting his own perculiar conditions, might arrange for placing his stock on in such numbers and at such time as would call for removal on dates different from the removal dates for the stock of each of the other permittees because each permittee's cow months would expire according to the number he placed on the range. The Ranger would spend a lot of time checking them in and again in checking them off to make sure the stock were removed. This would be necessary if use is to be regulated according to carrying capacity.

If our present cattle season is for May 1 to October 31, which permits 100 cattle to enter May 1, it doesn't indicate that the range would carry anything like 600 head during May nor for that matter during June. It is more probable that the portion of range that is ready for use May 1 would barely be able to provide for 100 cattle during May without range injury. The same may also be true to a less extent during June. A plan that would permit of all the use during the growing season would be disastrous.

There is merit in the practice of allowing use by a larger number of stock for a shorter period, both from the standpoint of range and the interest of the stockmen, but not during the growing season. Both the period of use and the increased number, in such instances, must be strictly controlled, allowed and handled in accordance with the peculiar conditions of the unit of range involved.

The animal months basis would not be consistent with intelligent application of grazing management plans. Four thousand eight hundred sheep for a month on an allotment that has been provided for 1200 sheep for the period June 1 to September 30 would not work well with a deferred and rotation plan. How could a salt distribution plan be made or carried out without constant change and attention if there was more or less frequent change in the number of stock being grazed?

MAKES THE BIG LEAGUE

By Ward Shepard

Fifteen copies of Harry Kylie's new film "The Forest and Water" were distributed during American Forest Week by the Motion Picture Producers and Distributors of America, of which Will Hays is President. Only fragmentary reports of the result are available. At Cleveland it was shown in three of the "first run" theaters during the week, one of which continued the film for a second week. In Detroit two prints of the film played 63 performances to approximately 103,824 people.

The reasons for this popularity are not difficult to guess: an effective and convincing story is told with beautiful photography. The story of water and the forest is followed from the springs of the high mountains to the swell of the ocean.

COLONEL GRAVES IS BETTER

Word has been received here that Colonel Graves, who recently underwent an operation for appendicitis and for several days was critically ill, is getting along very well. He had a slight case of pneumonia but this has passed and he is entirely out of danger. He has phlebitis, however, and this will necessitate his staying in the hospital for some time.

DID THE BRONTOSAURUS HAVE COOTIES?

The State Mining Bureau recently turned over to Mr. Hill, in charge of Forest Products for District 5, a small section of fossil wood that had been uncovered in a placer mining operation in the Feather River country below Lake Almanor. The specimen came from a gravel deposit that was preglacial in origin, probably of the Middle Pliocene period, which, according to some systems of rating geologic time, would give it an age of something like a million years.

It has not as yet been possible to determine the species of tree from which this wood fragment came, but imbedded in the wood was found an almost perfect specimen of a scolytid bettle. This was turned over to the California Academy of Sciences, and was determined by Dr. E. C. Van Dyke as one of our modern species, HYLASTES MACER Lec., which is common in dying yellow pine. This form seems to represent one of the oldest groups of scolytids, and apparently this species has not changed throughout a series of recent geological periods. - J. M. Miller in Western Forest Insect News.

In this age of labor-wasting devices, won't someone please establish a service station for Never-Sharp pencils and Self-Spilling, Kant-Help-Leak fountain pens? The layman can no longer expect to amass the special knowledge required to keep these implements going, any more than he can be expected to understand what it is that causes an automobile to run.

ANOTHER FOREST PRODUCT

The latest application for forest products on the Coronado is 10 to 12 tons of leaf mold to be taken from the Mt. Lemmon region and sold to a Tucson nurseryman for retailing to the proletariat in 10 pound lots @ 2¢ per pound for use on lawns and rose gardens, according to the Coronado Bulletin. The Manual and all circulars and Administrative Guides have been searched in vain for rates and quantities on leaf mold. Doubt if even the high-brow Crook outfit can give us any information. Advice from some of the District office crowd or from any Forest in D-3 is sought. When the demand even covers leaf mold it is high time to put the wilderness area policy into effect in at least some few localities in order to save some small areas from the craze of commercialism. - District 3 Daily Bulletin.

TEACHING BY DOING

On May 3, Rangers Brisbin and Naylor held a fire meeting at Spring Creek with a majority of the per diem guards from the Vallecitos and Tres Piedras Districts present, reports the the Carson Pine Cone. Various methods of fire control were demonstrated, including the use of a plow on fire lines. This was interesting and showed that a plow pulled by a truck or team with two men (one man to follow up with shovel) would build four times as much line as two men with hand tools, and in addition, the plowed line was a much better line as it was deeper. Each guard was instructed in what he should do in different cases and all seemed very much interested, It is believed that through this meeting better cooperation will be obtained. - District 3 Daily Bulletin.

The Swedish Forest Survey marks trees as they are tallied by hitting them with a bag filled with red powder. This should prove to be a quick and effective way to mark trees on sample plots as they are tallied.

GROWTH IN CUTOVER YELLOW PINE

These tables are obtained from Remeasurements of a 5-acre permanent plot on the Salmon Forest. The plot was laid out and cutover in 1909 and remeasured in 1912 - 1920 and 1926.

Growth in Board Feet Per Acre

Species	1909			Vol. of Stand		
	Original Vol	Vol. Cut	Vol. Left	1912	1920	1926
Y. P.	11,400	6237	5163	5469	6575	7448.
D. F.	2141	1231	910	921	1288	1691
All	13,541	7468	6073	6390	7863	9139

Net increase 1909 to 1926 = 3056 B.F. per acre.

Net increase per acre per year by periods.

	1909 - 12	1912 - 20	1920 - 26	1909 - 26
Y. P.	102.0	138.2	145.5	134.4
D. F.	3.7	45.9	67.1	46.0
Total	105.7	184.1	212.6	180.4

The growth averaged 180.4 Bd. Ft. per acre.

This growth came in spite of the fact that 6 OVER MATURE trees per acre were left; one of which has died and the other 5 are classed as of POOR VIGOR. Only 55% of the stand was cut. Lots better growth would be apparent if the stand had been opened up more and was not being held back by losses of overmature trees dying and slowing up in growth.- L. F. W. in D. 4. Daily News.

Walnut trees uprooted and buried in the channel of the Missouri River a century or more ago and then uncovered by the shifting of this fickle stream are a prolific source of raw material, says one of the big walnut producers in a recent advertisement.

SPRUCE WOOD USED IN LINDBERGH'S PLANE

It was wings grown on the shores of the Pacific that carried Captain Lindbergh to the aerial conquest of the Atlantic. The Ryon Airplanes Company, which built the "Spirit of St. Louis", have announced that the wing beams were made of Sitka spruce obtained from a mill at Hoquiam, Washington.

This wood came into fame for airplane construction during the war. Spruce is the preferred wood for airplane framework because of its lightness, straight grain, and the ease and accuracy with which it can be worked up into "sticks" of small cross section. Sitka spruce being a tall straight tree yields long "clear" pieces free from knots and all other defects. - From D. 5 Bulletin.

THE FENCE POST

By A. G. Jackson, Siskiyou, D-6

Consider the humble fence post. Its value depends upon its upright character and its endurance under the buffeting and gnawing of the elements and the pull and stretch of wire or wood. Its visible part stands boldly up against sun, wind, rain, hail, and snow. Its unseen portion, buried in the soil, must withstand the sharp teeth of insidious decay. To maintain its erect position it must have a good foundation, solid and well-set.

The responsibility of being a fence post is too great for all kinds of wood except a few tried and true species . Red cedar, western larch, and juniper are three of the worthy woods from which most of the posts of the Northwest are split out by the woodman's or farmer's ax. Many a western ranch is fenced with wire fastened to such posts cut on a National Forest.

Some posts are cut from green trees and left in the woods to dry out for a season before they are hauled to the place of their use. They must be seasoned and sound before becoming worthy for their job of keeping wanderers within and marauders without. Others are split from snags and windfalls in the forest, which even after being killed by fire or wind still serve man-kind.

No matter how well adapted a fence post is for its job, its period of usefulness may be greatly lengthened by giving it an antiseptic bath and filling its pores with chemicals impervious to water and distasteful alike to fungous and insect life.

The next time you see a fence post standing upright on its job, give it the respect that is its rightful due. It has ever been a guardian of the property rights of man.

PLEASE BE A FOREST RANGER!

Every year, just after shad season is over and cantaloupes and cherries are ripe, this District enters into a grand scramble with six other National Forest Districts for the handful of forest school graduates who have been lucky enough to pass the Civil Service examination for Junior Forester. Each district sends out the most enticing telegrams that it can concoct in an endeavor to tempt the prospective foresters to accept a job in this or that particular region, and some of these men doubtless receive as many wires as a new bride separated from her husband the day after the wedding.

If this ring-around -the rosy practice is to continue it will probably be necessary in the near future to send out telegrams something after the following order to meet the growing competition:

"John Smith, Swamp Hollow, Florida. - Will you accept parchment appointment, suitable for framing, signed by the Secretary of Agriculture, as Forest ranger on Sunkist National Forest. We provide tastefully decorated rustic ranger station, all modern improvements, garage and garden in town of five thousand with picture show every night and frequent dances. Few fires in your district and very popular with pretty girls, motorists, and sportsmen. Good fishing and hunting in season and many opportunities for congenial and profitable acquaintanceships. Will furnish you light-six coupe, up-to-date typewriter for office, and whipcord uniform with pigskin puttees and Stetson. Wire how soon you could report our expense by Overland extra fare limited. "From D. 5 Bulletin.

Service Bulletin

U.S. FOREST SERVICE
(Contents Confidential)

VOL. XI. No. 26 WASHINGTON, D. C. JUNE 27, 1927.

4-H Club Boys and Girls Participate

In Tree Planting Ceremony

During the week June 16 to 23 one hundred and fifty boys and girls who came here as representatives of the National 4-H Clubs were encamped on the Department of Agriculture grounds in this city. Thirty-eight States were represented by delegations of four club members each - two boys and two girls - accompanied by two extention workers. Each of these delegates was given the opportunity to participate in the National Camp because of their outstanding achievements in club work. They represented some 586,000 farm boys and girls in all parts of the country who are enrolled in club work.

One of the features of the meeting was a tree planting ceremony on Saturday afternoon June 18. A hemlock tree presented by State Forester F. W. Besley of Maryland was set out on one of the knolls of the Department grounds, between 13th and 14th Streets. Several of the boys and girls took active part. A group of men and women of the Forest Service led the singing of the two songs "Made of Wood" and "On Forest Land" written by L. C. Everard of the Washington Office. After the tree was planted, a short address entitled "A Charge to the Tree Planters" was made by Colonel Greeley. Each of the boys and girls and also the club leaders was given copies of the program. On the basis of this it is hoped that similar tree planting programs may be conducted in many of the 4-H Clubs in the several States.

On Friday afternoon, June 17, each boy and girl was presented with a gavel by Secretary Jardine. These gavels are made of hickory and pine, the hickory from a tree which grew on the grounds at Mt. Vernon and the pine is from some of the old timbers removed from the White House during the present reconstruction. Coming as a suprise to the Secretary the boys and girls presented him with a somewhat larger gavel containing specimens of wood representing and typical of each of the 48 States. A piece of Alaska cedar is included for Alaska and the handle is of eucalyptus. Eucalyptus is the only one of the woods not native to North America and makes a total of 50 different kinds within the gavel. A statement on the gavel and a key signed by each of the boys and girls in the camp bears the information that the gavel was made at the Forest Products Laboratory of the Forest Service at Madison, Wisconsin. The actual presentation was made by a committee of four boys and girls representing the principal geographical regions of the country. The spokesman of the group was a boy from Wisconsin. He told the Secretary something of the pride which Wisconsin takes in having the Laboratory within her capital city and so closely associated with her State University. At the same time he spoke of the 428 boys who are members of Forestry Clubs in Wisconsin, and of the plans which the 4-H organization has for the development of this part of their work.

On Monday evening, June 20, the delegates to the Camp were given a banquet at the Mayflower Hotel. Each boy and girl was the guest and companion of somebody from the Department of Agriculture. The Forest Service was well represented at this affair, and the men report that they made some most interest-acquaintances.

AN APOLOGY

Having copied in the May 23 issue of the Service Bulletin Mr. Rutledge's article in the D. 4 Daily News of April 6-7 we are glad to print his corrections as given in the May 24 issue of the News, and here they are:

"In the first sentence in paragraph, 4 District 1 states: 'Flint made the statement that of the number of fires of 100 acres or more for which he was able to assign causes, there were in 14% of the cases failures in organization which probably contributed to the fires not being sooner controlled. Using the context in your sentence, the figure should be 2.8% instead of 14%. For all fires the percentage is approximately 1%.'

"Referring to the statement that 'apparently a large number of fires reached large proportions after having been placed under control as the man in charge thought,' District 1 says the statement made on this point, which is supported by the records was that not more than one -third of one per cent of the fires that had occurred in the District in the last five years got away after they were presumed to be under control.

"Continuing, District 1 says: ' A long time did elapse between starting of a good many fires in 1926 and arrival of men on the line. The delay was due to two causes, (1) inability to discover fire because of the smoke screen, and (2) the fact that on some ranger districts many more fires were started by the storm of July 12 than there were men available to send to them. The Forest on which the average elapsed time was given as 11 hours was the Coeur d'Alene. The delay there was because there were a number of fires that were not discovered promptly due to the smoke screen, and consequent inability of lookouts to function. I have not the exact figures, but I am sure that elasped time between discovery and arrival on the line did not exceed two hours. Without this explanation, I think the average Forest officer would gain an entirely wrong impression of conditions.

"On the question of fires gaining large proportions because of failure to mop up thoroughly, District 1 says: 'You will recall that I repeaedly stated that considering the fact that only in a few instances did the records show that the fires got away through failure to mop up I did not believe that there was occasion to place any great emphasis on this point, and that I did not believe the District was warranted in going to much additional expense on all of the fires for the purpose of making them still safer on the theory that money would be saved by so doing.'

"On the question of night travel and work. District 1 says: 'I do not contend that there was no such contention at the time of the meeting that as a general practice prompt starting and night travel is not desirable, nor do I agree that it is not very generally practiced.'

"On the question of formulating rules and enforcing them, District 1 desires it understood that they are in favor of the present rules and their enforcement, but that they do not feel that any or many additional rules are necessary."

The D. 4 Bulletin makers have a habit of getting a lot of good stuff into their columns and from it we often select stuff for the Service Bulletin.

We want to say that our admiration for D. 1 bunch in their handling of about as tough a fire problem as there is in America is such that we will not, ever, CONSCIOUSLY print a word that will in the slighted measure discourage them nor do we intend to publish inaccurate statements of fact Editor.

HERE'S ONE

How many county treasurers or other county governmental agencies can you induce to have printed on their official stationery this slogan:

"Future county revenues are directly decreased by fire damage to the National Forests; help protect them from fire."

This little idea has been worked successfully in District 2. - Eastern District Digest.

AGAIN, WHY NOT COW MONTHS?

By R. R. Hill, Washington

The problem which Mr. Abbott presents in his discussion of this question in the May 23 issue of the Service Bulletin of preventing undue concentration of stock within a short period if a permit is granted in terms of cow months is no more difficult to control than is proper distribution of stock on Government land in a case under Regulation G-3 where perhaps three-fourth's of the land in the grazing unit is in private ownership and only one-fourth in Government ownership. The terms of the permit may provide that a maximum number of stock representing four times the grazing capacity may be on the Government land at any one time without being in trespass. Moreover in the case of sheep allotted to a range it is not at all uncommon for the band to concentrate on a small portion of the range and consume most of the feed within a comparatively short time.

Whether we allot stock on the basis of cows or cow months as units, don't we have to depend upon judicious management by the stockmen supplemented by adequate range supervision to insure conservative use of the forage? If we use cow months there should be a proviso that stock should graze only during the proper season and the permit should specify the maximum number to be grazed at any one time.

The extension of the use of cow months would be in line with the policy of decentralizing authority in range supervision. If the District Forester extends to the Supervisor the authority to determine how many head of livestock should be upon a given range unit at any one time - it strikes me it is in line with good administration policy, provided he holds the Supervisor responsible for good range management. An important objective in range administration is to give the Supervisor and Rangers such assistance as is needed to determine what is good range management on each local unit and to develop sound management plans based upon the best knowledge of conditions and then to hold the local administrative officers responsible for the execution of those plans. In harmony with this policy is it too much to expect that the local officers will appreciate the necessity of preventing harmful concentration of stock? On a community range such as Mr. Abbott refers to it would doubtless be advisable under the cow months system to qualify the permits so as to insure fair use by all the permittees.

Ordinarily, it is probable that the use of the range under the proposed system of issuing permits would not vary materially from the use under the present system where a specified number is permitted for a specified period. The proposed system would allow the permittee greater leeway to adjust his use of the range to the particular needs of his business without the necessity of having a special season established to meet an emergency. As we approach the time when grazing fees will be based more nearly upon the actual value of the forage, perhaps we should consider the advisability of adjusting our administrative procedure so as to conform somwhat better with the customer's needs even though we may not wish to accept the slogan that "the customer is always right". The extension of the cow-months system might even reduce the number of grazing seasons in some cases without resulting in administrative chaos.

The use of cow-months is of particular value in comparing the carrying capacity of different units and Forests and even districts. It is of great value, likewise, in furnishing a common measure by which we can compare the relative amount of time and money spent on grazing and the amount of grazing work to be done on different units.

A LESSON WELL LEARNED

In Chalk Creek Canyon, through which the Forest Service is proposing to build a road, the first known storm resulting in floods, occurred about 40 years ago. These floods filled the canyon with boulders, in many places the entire width. In some places deep gullies have been formed in these boulder bottoms, to the sorrow of the people of Fillmore. Prior to about 10 years ago heavy floods were frequent, occurring five or six times a year. It was believed by the citizens of Fillmore that the great floods and subsequent erosion were due to overgrazing in the watershed and particularly premature grazing, which destroyed the vegetation and sod. They evidently have learned a lesson from this, for during the last ten years no floods of any consequence have occurred in the canyon. They are taking every precaution possible to insure a good water supply and good protection against floods. It was found that the grazing season in the watershed is now open, but the people absolutely refuse to enter any stock on it until after June 15. By following this custom, the people feel that the watershed, which is now coming back in grass and browse, will eventually be restored to its original condition and will then accommodate a large amount of stock and also give them security in water supply and protection from floods. - From District 4 Daily News.

DISTRICT TWO REPORTS PROGRESS IN RESEARCH

At the annual meeting of the D-2 District Investigative Committee, a total of 111 projects, not including those at the Experiment Station, were reported upon. Of this number, 66 are handled by the Office of Forest Management, 20 of which relate to planting projects. Growth studies, studies of the effect of grazing upon reproduction, and methods of cutting are the objects of most of the others. Thirty-nine of the projects on the Forests are supervised by the Experiment Station, the local Forest officers doing a part or all of the field work. There are 6 grazing projects, of which 3 are charged to individual Forests and 3 are general. One of the general projects relating to natural revegetation involves 118 fenced plots throughout the District, or 236 quadrats. Another of the general projects is a study of grazing periods. In order to carry on this study stations for observing plant development were established this year on 131 grazing divisions.

The above indicates the interest which is being shown in research work in D. 2. This interest is encouraged by the Experiment Station Director and by men from the District Office, and projects are also placed on plans of work for the Forests if the District Investigative Committee and the District Forester feel that the studies are necessary for the best silvicultural or grazing management of any Forest. There is more time contributed to research work by D-2 Forest officers than in any other District.

LAND EXCHANGES

From data compiled in the Forester's Office, it appears that during the calendar year 1926, the Secretary of Agriculture gave his approval to 97 land exchanges, covering an area of 135,891 acres of offered land, in return for 6,101 acres of selected land, and timber valued at $320,532. There were 27 exchanges, covering an area of 21,879 acres of offered land, in return for 6,101 acres of selected land; there were 70 exchanges, covering an area of 114,012 acres in exchange for timber, valued at $320,532. The total value of the offered land was placed at $607,912, while the value of the selected land and timber was placed at $426,202. From the foregoing it is apparent that there will be quite a substantial addition of forest-producing lands accomplished through the land exchange law. Of course not all exchanges which have received the Secretary's approval will finally be consummated, but a very high percentage no doubt will. - C. H. S.

MANZANO IS HONORED

The members of the Supervisor's office of the Manzano have been voted in as honorary members of the Mountainair Chamber of Commerce. Ranger Laney is an active member. At the last meeting, the members authorized a committee to purchase the site on which the Quarai ruins are located.

Work of excavating the Abo prehistoric ruins brings to light that more extensive buildings are included in this group than were originally thought to exist. The ruin is located on private lands.

VALUE OF UNIFORMITY IN COST ACCOUNTING

By Quincy R. Craft, District 3.

At a meeting of the New Mexico retail lumber dealers in Albuquerque cost accounting was the foremost subject under consideration. The discussion was led by G. R. Foster, of Wolf & Company, Chicago, official accountants for the National Retail Lumber Dealers' Association, who outlined a copyrighted system of the Association, adopted after three years' study and then a practical test for one year by 100 yards, and which has now been installed by over 900 yards in 37 States.

No charge is made for the system, except the stipulation that it be not changed, but it costs, at least at the outset, more time, new equipment, and a week's time of an expert accountant at $30 a day and expenses. In Denver, for example, 15 yards have discarded good systems, and they say that the outlay was a good one. By securing uniformity one dealer can compare his operations on paper with a composite statement of the fifteen dealers, each of whom furnishes a statement monthly to a confidential secretary, receiving the combined statement in return.

Vernon Metcalf once said "a poor or illogical distribution of costs uniformly carried out is better than a perfect system, that through lack of understanding or indifference is not carried out uniformly."

Mr. Foster said, "Make your books talk to you; make them tell you a story." In other words, do not keep books simply because it is the fashion, make them your servant, not your master; keep no books that do not yield adequate returns for the time expended. He pointed out that never before were cost figures so much needed, for we no longer have war time conditions with large sales and big margins. And productive departments are not sufficiently profitable to carry for sentiment or other reason departments that persistently do not pay. He gave three tenets of business: (1) Get some business; (2) Earn a profit; (3) KNOW that you have earned a profit. For this true cost figures are indispensable.

Substituting our substantives, it seemed as if Mr. Foster might have been talking of Forest Service distribution of time. Do we not yearly confront an increasing need of husbanding this resource, capitalizing experience, eliminating waste and even the less profitable work? Our leaders have pointed out that future advancement lies not in increased funds but in better use of what we have at our command.

Retail lumbermen deal in wood as a major "project," and I care not who invented the pun on "wooden" things the work is peculiarly pleasant because of its presence, of protecting wood in the making; saving it in perfect manufacture; and converting it into a heritage of homes. Yet, like men, no two sticks are alike. It is within the plan of the lumbermen to have the handling of characteristically variable material, irrespective of State lines and geographical differences, covered by a cost system so uniform and correct as to be useful and dependable.

If they can succeed, can we?

A NEW FIRE HAZARD

The following was written by an official of a lumber company which is operating in South Carolina, in answer to a query concerning the company's fire protection policy.

"Whiskey stills are a great drawback to us owing to the fact the stillmen will let fire get out but they have put in improved methods and now operate stills by gasoline or kerosene and this eliminates the fire risk. We find it a good policy to say nothing to the stillmen, if we did they would likely burn the woods and we have passed the word around that we are not in the still business and not fighting them but ask them to be careful with their fires. We feel that the still operation is a thing that the government should look after and not the private individual. Our 48,000 acre tract only has about six people living on it so you can readily see it is a Heaven for stillmen." - E. L. D., Southern

The Shenandoah Forest had a brisk fire a year or two ago caused by the explosion of a gasoline fuel still. Even with improved methods, hootch causes fire troubles as well as others. - Editor.

THE TIMES HAVE CHANGED SOME

By G. S. Case, Siskiyou.

The month of August, 1926, was the driest and smokiest that this district has ever known. The humidity held quite consistently below 20 and got as low as 4, and the fires to the north kept the country so filled with smoke that the lookouts could hardly see beyond their stations. It is in times like this that we come to realize the value of the work of Public Relations. If there had been any "light burners" or other fire-bugs present in the district during this period, they could have set fires that would probably not have been discovered until our lookouts had almost been burned. Verily, an ounce of prevention is worth a pound of cure.

It is surprising, too, when one looks back, to see to what an extent public opinion has changed in regard to the Forest Service. A few days ago we were going over some old letters written about 1903. Among them we found six or eight letters between the District Ranger, the Forest Supervisor and the District Forester concerning a fire-trespass case. It seems that some local resident had taken a little trip into the hills in the middle of the fire season and had built his camp fire in a big hollow snag and then had gone on the next morning without taking the trouble to put it out. Apparently he had not even "thot it was out" as is generally the case to-day and admitted leaving the fire. The fire spread and burned several acres before it was finally out. This correspondence was in regard to whether or not it would be advisable to prosecute the man. The final decision, concurred in by the District Ranger the Forest Supervisor, and the District Forester, was that prosecution would be apt to arouse so much adverse sentiment that it would probably do more harm than good, and the case was therefore dropped. In those days, the Forest Service was a mere stripling and was looked upon with suspicion at best; to-day the Forest Service is a man grown and looks the whole world in the eye and commands his proper respect. To-day, in this district, we know that it would be failure to prosecute in such a case as this rather than prosecution that would bring criticism upon us. The result is that we have fewer fires, Uncle Sam's trees grow into saw logs, and the young growth protects his water supply. We have not sold forestry to one hundred per cent of the people yet, but it is at least encouraging to know that we are progressing.

SPEED OF ATTACK

In the fire studies which have been made so far in the District on seven Forests only one Forest shows as great an average speed of attack for the past few years as was obtained by the old timers back in 1911 to 1915. We are not overlooking the fact that the size of the average fire has steadily dropped and that, after all, is the desired objective regardless of speed. Ordinarily however speed and area burned are so closely tied together that the statement made in the first sentence alone is being broadcasted as a challenge from the trailless, roadless, autoless progenitor of the present day field man to beat his time if you can. The figure is based on the relation of the number of fires attacked within one hour to the total number of fires - not only in the fire season but yearlong. - E. W. L., in District 3 Daily Bulletin.

"SHOW ME" TRIPS

The District office inspection outline calls for all Supervisors and Rangers taking influential citizens out on "show me" trips. Someone suggests for the fire Forests that Justices of the Peace, attorneys and judges be considered along with the editors, school heads, legislators, etc. It will be interesting next fall to learn the variety of interests reached. - D. 4 Daily News

KNIGHTS OF THE DIAMOND HITCH

Dear Wandering Ike, where'er you write,
And whoever you may be;
Your spiel, "The Ranger's Horse", tonight,
Has strangely attracted me;
You know your stuff for the things you said
Were logical, rare, and rich,
And I thought, with joy, they're not all dead
There's a Knight of the Diamond Hitch.

'Twas not so much the words you wrote,
Nor because you backed my stand,
That made a pull which choked my throat,
As I longed to grip your hand;
But I saw more than words, and knew
When I read between each line,
That your's was heart of a woodsman, true,
An your soul akin to mine.

I knew that you, somewhere, sometime,
Had felt the lure of trails
That led you up to heights, sublime,
Or down through the quiet dales;
And then, in fancy, I saw you yet
Far afield on your faithful horse,
Your life unspoiled by Ford regret,
Or by Chevrolet remorse.

In fancy still, I saddled Buck,
And I hit your winding track,
My mess-kit, bed, and other truck,
Lashed tight on a pack mule's back;
Until I found, just at falling night,
Close up at timberline,
Your camp fire's blaze with its cherry light
Near a spruce of queer design.

I 'lighted and said, "Well, Ike, old chum,
I heard your call today,
I knew you were here, I had to come,
I could not stay away."
I felt the grip of your good, right hand,
And I heard you heartily say,
"I knew you'd come-as we've always planned-
Since sunrise yesterday.

"Just throw your pack and turn 'em high,
The feed up there is fine;
That's quite a horse you're riding, Si,
He's about like one of mine;
Let's eat, I've kept the coffee hot -
Oh, he weighs eleven-ten?
I think my sinkers will hit the spot -
Why he just tops my old Ben!"

We sat and ate, your chuck all went
As I proved your cooking good;
My soul, as well, was at last content
With a feeling of brotherhood;
We chucked the fire and rolled a pill,
As we scoured the frying pans,
Then sat and smoked by the babbling rill,
And discussed each other's plans.

At last the moonbeams paled the glow
Of our slowly dying fire;
The horse-bells chimed, the winds moaned low
Through the strings of their tree-top lyre;
We banked the embers, rolled in and dozed;
A coyote's howl rang clear;
I grabbed my gun and quickly arose -
Alone in my office, drear.

Well, well, that dream was as real, Ike,
As the spell which holds a few
Of us old timers, who still do like
Old Nature's heart to woe;
So let's you and me still blaze our trails-
Perhaps those signs they'll ditche
If we show the spirit that never fails
True Knights of the Diamond Hitch.
LoCoed Silas - Holy Cross

FINE COOPERATION BY BIOLOGICAL SURVEY

A note received from Mr. Viles on the Pecos River states that Mr. Mullins of the Biological Survey who recently went there on a special trip to prevent deer and calf depredations, got 16 coyotes in 7 nights, and that the settlers got 3, making a total of 19. Poison baits were used and it is entirely possible that more than this number were actually killed. Ranger Johnson last fall killed several T-12 horses in the Panchuela pasture and the carcasses attracted apparently all the coyotes in the country. After this feed was gone they started in on Mr. Viles's calves and the deer in the vicinity. "A emergency call was sent Mr. A. E. Gray of the Biological Survey stationed at Albuquerque, with the above result. The Biological Survey has a regular program of predatory animal control and usually must adhere to the program without deviation in order to accomplish its objectives at all economically. However, in this particular instance the cooperative spirit of that Bureau was well rewarded and Mr. Gray has the heartfelt gratitude of all the sportsmen and stockmen in that vicinity. District 3.

LET'S REVISE THEM

By C. C. Olsen, Deschutes

From time to time the thought has occurred to me that a slight improvement might be made in the scale books used on timber sales. It is not always desirable to compute the defect deducted from unsound logs; and all scalers, particularly the newer ones, do not know the tables of defect. Just for the sake of argument and possible improvement, might it not be advisable to have a table of squared defect and rectangular defect printed on the two blank pages in the rear of such books? Additional cost would be negligible and of small importance in relation to the service such tables could render. Much needless copying of tables could thus be avoided.

TURPENTINE STUDY COMPLETED

The results of a three-year study made by Ranger Shumway (Sitgreaves N.F.) on the yield of turpentine from western yellow pine have just been compiled. The average yield per face per week compares very favorably with the results secured in the earlier study made near the Fort Valley Experiment Station. Records were kept separate for the blackjack, mature and overmature classes and it was indicated that all three classes will produce gum in paying quantities and that the yield holds up well for a three year period. District 3.

ACCURACY

A letter of thanks for an article on the life of J. Sterling Morton sent from this office says: "Mrs. Charles H. Sabin, who is one of our members and a granddaughter of Mr. Morton, read the article also and was very much pleased with it; in fact she learned some things about her grandfather that she did not know before. These government departments are so very painstaking and helpful - all honor to them!"

"Range can be maintained and improved by avoiding too early grazing, continued until all feed is used, by not overstocking, by leaving enough plant growth at end of spring grazing to allow some of spring range to reseed

ANOTHER GOLD RUSH

Again the Crook threatens to receive notoriety. The famous Dripping Springs Gold Rush is within six miles of the south boundary of the Globe Division. Reports from the scene of activity say there are 3,000 cars on the ground. The humble burro and the erstwhile covered wagon appear to have lost their place in the sun. Apparently the main source of gold is in the restaurant business so long as the supply of sightseers keeps up. - District 3.

Service Bulletin

U.S. FOREST SERVICE

(Contents Confidential)

VOLUME XI. No. 27 WASHINGTON, D. C. JULY 5, 1927.

THE PART OF FORESTRY IN FLOOD CONTROL

Address by W. B. Greeley at Mississippi Flood Control Conference, Chicago, June 3, 1927

The first thing needed in trying to stop floods by tree growth is to drop all exaggerations about it. It is not true that serious floods are due to deforestation. They occurred when the virgin timber on the Mississippi basin had scarcely felt an ax. It is equally untrue that forests have no bearing upon streamflow. A deal of concrete evidence shows that they have.

The Mississippi basin contains about 89,000,000 acres of forested or denuded land which has little or no utility except in growing timber. No one can assert that the condition of this vast land surface, or the degree of care or of neglect which it receives, have no bearing upon the flow of the Mississippi River.

We must approach this question with sanity and common sense. Forests do hold back flood discharges; but they cannot prevent large floods when heavy rains occur. Any reservoir overflows when it receives more water than it can hold. Likewise, forested land overflows after it has become fully saturated with rain. Furthermore, any benefits derived from reforestation cannot be secured over night. They will come about only through a long space of time.

Hence forests cannot be substituted for the engineering structures upon which our main reliance must be placed for controlling heavy flood discharges. They can supplement dams or levees, but cannot take their place. In dealing with this problem, forestry should be the handmaiden of engineering; but as a handmaiden it has a valuable service to offer.

Many factors influence the behavior of streams. The cover of forest or other forms of vegetation on their drainage basins is but one. The soil and subsoil, the rock strata, the topography, the amount, kind and concentration of precipitation, the seasonal range of temperatures - all have their part. We must be cautious in describing the role of forests, and cannot do so in exact terms. Nevertheless, their role is important.

In the first place, forests cause a more gradual melting of snow. Forests moderate both extremes of temperature. They are warmer than open land in winter and cooler in summer. As spring comes on, snow melting may begin earlier in the woods. On the other hand, it usually lasts longer in the woods than on exposed ground. The common effect of forest cover, borne out by many observations, is to retard the melting of snow after warm weather sets in.

Because of their moderating effect on

extremes of both heat and cold and their mulch of ground litter, the soil freezes less readily under forests than in open spaces. Hence in the colder regions forest soils are kept more mellow and better able to absorb water released during the first warm days of spring.

In the second place, forests reduce erosion. Any vegetative cover tends to reduce erosion. But forests usually perform this function more effectively and permanently than any other type of vegetation. This is because of the thick mulch of leaf litter and branches which they drop upon the ground. Furthermore, they are constantly feeding humus into the soil itself, increasing its porosity and binding its mineral constituents. And the mass of roots of the trees and shrubs have an enormous binding power of their own.

The actual effect of forests upon erosion cannot be gauged without considering other factors, particularly the character of the soil and topography. The streams of the northern Lake States, for example, largely drain porous soils containing much sand and fine gravel. These soils have a high humus content, thanks to the stands of pine and spruce and hemlock which once covered them. Their drainage basins contain much lake and swamp storage and receive a heavy snowfall. All of these facts tend to keep them clear, regardless of the presence or absence of forests today. Hence the Mississippi River above St. Paul, with a basin of 19,585 square miles, carries a yearly silt discharge of only 117,000 tons.

The Tennessee River, on the other hand, with a catchment area less than twice as great, carries an annual silt burden of 11,000,000 tons. The Appalachian region which it drains is a country of light snowfall and of irregular and often concentrated rains. It contains few lakes, but is made up chiefly of heavy, compact soils which easily erode. On such basins, forests exert their maximum influence in reducing erosion. And what is true of the Tennessee, applies equally to many of the middle and lower tributaries of the Mississippi which drain the Appalachian and Ozark regions and the lower hills around them.

The Mississippi receives an enormous flow of water also from the eastern slopes of the Rocky Mountains and the great plains. The mountain tributaries of these rivers are mainly clear. They are partly forested and fed chiefly by springs or melting snow. But, with their inflow from the treeless plains, these rivers undergo violent fluctuations between high and low water stages. From the plains they gather in an enormous volume of silt, causing channel bars, meandering currents, and constant undercutting of the banks. The Missouri River, above Ruegg, Missouri, carries a yearly load of 176,000,000 tons of silt. No possible forms of vegetative cover could overcome these conditions; but the extension of forests and better conservation of range plants would somewhat moderate them.

The actual effect of the loss of forest or brush cover upon erosion has been demonstrated at many points. The gullying of abandoned fields and of logged-off and burned-out woodlands on the slopes of the Appalachians has been striking. So was the washing of soil from the forested area in Tennessee, killed out years ago by the Ducktown smelter fumes. The cutting off of forest cover on a small watershed in Colorado, although in a region of coarse, permeable soil, increased the volume of silt discharged 8-1/2 times and increased the flood silt load 12 times. The burning out of a small brush-covered canyon in Southern California, in 1914, was followed by a silt discharge in a single year of 100,000 cubic yards of soil from a basin containing little more than one square mile. Disastrous erosion has followed every forest or brush fire in the rugged gorges of Southern California.

The denudation of a large area in the Sacramento Canyon, by smelter fumes, in a region of steep slopes and friable soil, has been followed by the erosion of fifty cubic yards of earth per acre annually. The soil content of these streams has ranged from thirty to one hundred and fifty times as much as the soil carried by adjacent streams still protected by the normal brush and vegetative cover of the region.

Our main interest here, in the value of forests for reducing silt discharge into the Mississippi River, lies in the enormous area of easily eroded soils on the tributary streams from the Appalachian Plateau, the Ozark Plateau, and the great plains. The cumulative effects of such erosion add enormously to the flood problem. Among them are its cutting action upon banks and channels, the shifting of currents to new courses, and the gradual building up of the river bed in its lower reaches which slowly reduce the effectiveness of levees. Engineers can appraise much better than I the exact proportions of this problem. Forestry by no stretch of the imagination offers a complete remedy. There is no complete remedy for the natural and inevitable process of erosion, whereby the Almighty decreed that the mountains should, in the course of ages, be carried down into the sea. But forestry and other means of improving the vegetative cover of these great drainages do offer an ameliorating influence. They can aid materially in lightening the tasks of the engineer as well as conserve our mother earth for its many beneficial uses in the place where it belongs.

(To be continued in July 11 issue)

GUARD MEETING ON THE SHASTA

May 19 concluded what we believe were the best four days of training at a Guards' meeting that could be demonstrated. The meeting was opened by Supervisor Jones who, after a short talk, turned us over to Assistant Supervisor Myers.

The meeting was held for the Sacramento and McCloud Districts, 24 men being present. A typical fire camp was established at Camp #1, where 300 men were stationed on the Castle Creek fire of last year that burned over 3,334 acres.

The first morning we fought an imaginary fire across the canyon and in the afternoon plows, scrapers and hand fire lines were constructed, accompanied by demonstrations with power, back-pack and Portuguese pumps. The plow proved impractical on account of the country being rough and steep. The scraper was found to clog too easily for fire line construction but all right for trail maintenance work. The back-pack and power pumps are O. K. if water is available.

A 100-acre fire was reported in Big Canyon about three miles south of Mount Shasta at 7:10 P. M. and was reached by our party at 8:00 P. M., but was found to be undercontrol.

The next morning the crew was divided into two sections with the Assistant Rangers in charge. Guards were made crew leaders of the 86 Mexican fire fighters. After the lines had been mopped up, each section criticised the work of the other.

Criticisms made were that punky logs and stumps should be covered with dirt on both sides of fire line; more care should be taken to build the fire line down to the mineral soil; all snags near the fire line should be felled; a deep trench should be dug whenever you are forced to build the fire line below the fire.

The worst mistake on the fire was the construction of line below the fire on a hillside where burning logs and snags were numerous. Always build line straight down hillside or bear slightly away from fire so all rolling material has to roll into fire.

Another important lesson was that you could not leave the fire in charge of an inexperienced fire fighter. A Forest officer started a crew of section men on a piece of line with full instructions as to where the line was to run. He then left the fire to do some telephoning. When he returned he found that the men were running the line directly away from the fire and had cleared a trail through the brush field, which would have made a good wagon road and which, if put in the right place, would have circled the fire twice.

The morning of the 18th was given over to a review of the Castle Creek fire. The mistakes pointed out were: Not following instructions, not tying a sideline into a natural base line, thus combating fire at head after repeated losses of line. Four small fires were set in the afternoon. They were turned over to a Dispatcher, who sent Guards out to suppress them. They were put out in a satisfactory manner.

On the morning of the last day general instructions were received in regard to fire report forms that Guards are expected to make out. In the afternoon we went to La Moine to review the mistakes made on the Slate Creek fire, which were similar to those that are made on many fires.

Our superior officers held the floor at the camp fire sessions and some very important points were drilled to the core, such as attacking a fire and combating the head of it. It was decided that if a fire can be subdued and controlled immediately with the forces at hand, to attack it at the head, but if you lose, drop back to a natural base line, tie in sidelines, follow breaks as much as possible and not try to buck the head of a fire until late in the evening or at night. This is a common mistake made on many fires.

The meeting brought out a great many new ideas. It set before us the different problems that are always raised on a fire line, it refreshed our minds, it broadened our vision and strengthened our confidence. - From D. 5 District News Letter.

THE MONTANA FORESTRY LAW

District Forester Morrell says: "To get full benefit from the new Montana forestry law, State Forester Parker has asked the Forest Service to look after certain items for the areas within and adjacent to the National Forests. More specifically, he desires that the following procedure be followed:

"1. Each Forest to protect, issue burning permits for and supervise slash disposal on areas within and immediately adjacent to the boundaries. (Ordinarily the fire cooperation map will govern the distance to be gone outside of the Forest boundaries.)

"2. Each Forest to solicit financial cooperation within these limits (except for lands within Associations) and to enforce responsibility for uncontrolled fires on private lands.

"3. Brush-burning permits to be issued as provided by the new law and law violators prosecuted. The new law does not take effect until July 1, but permits, except for agricultural clearings are required during June of this year under the old law. Permit forms will be issued by the State Forester.

"4. Supervisors, Deputies, or Rangers to visit all active logging operations in their districts except on State sales and discuss methods of slash disposal with the operators, preferably on the ground. The desirable method of disposal will be recommended to the State Forester, who will issue written instructions. Inspection to be made after completion of disposal and report made to State Forester. Forms needed will be furnished by State Forester.

"5. Attention is called to Section 5, which requires slash to be piled currently along trails, roads, and other right of ways and burned within a year. It is desirable that Forest Service practice should be harmonized with this requirement as far as possible and in cases where this procedure is impracticable, authorization to deviate from it should be secured from this office."

WIND VELOCITY AND FOREST FIRES

By F. H. Eyre, Washington

The following is quoted from Gisborne's recent manuscript "Measuring Forest Fire Danger in Northern Idaho:"

"In using the forecast of wind velocity supplied by the U. S. Weather Bureau, the fact is frequently overlooked that the words "light, gentle, moderate," etc., as used by the meterologists have specific meanings. The following table shows the range of wind velocities in miles per hour indicated by each of the more general words used in forecasting:

Terms used in forecast.	Wind Velocity in Miles per Hour.
Light	7 or less
Gentle	8 to 12
Moderate	13 to 18
Fresh	19 to 24
Strong	25 to 38
Gales	39 to 54.

The importance of knowing the different wind velocities implied by these terms is obvious. All too frequently wind forecasts have been rated as useless by field men, not because the forecasts were incorrect, but merely because the field men did not know the facts in the above table."

Show found that, other conditions being similar, the RATE OF SPREAD OF FIRE VARIES ABOUT AS THE SQUARE OF THE WIND VELOCITY. In other words, a change in wind velocity from 7 to 14 miles per hour does not increase the danger 7 times, but 49 times.

UTILIZATION OF GRASSES

By D. A. Shoemaker, D. 3.

It has been determined that for the turf grasses in the Southwest, 70% of the total growth should be left at the end of the growing season and 10% to 15% of the total growth at the end of the grazing season. The end of the grazing season on this type of range means the time when normal summer growth begins, which is usually in the latter part of June or early July. On short season ranges, the end of the grazing season is, of course, the time the stock are taken off the range.

Results of studies throughout the Service to determine proper utilization are stated in the grazing manual as standards. The outstanding points of these guides are that 25% of the seed stalks of the principle forage species, evenly distributed over the unit should be left at the time of seed maturity and that from 10% to 25% of the palatable forage should be left at the end of the grazing season. Both of these standards are applicable to the Southwest when used as guides under specific conditions. Our turf grasses reproduce largely by runners and for that reason it might appear that the amount of seed produced is not a good basis for judging proper use. However, this condition probably is a good criterion since such utilization would insure protection that would allow the plants to have the vigor necessary to spread vegetatively. In any event, the standard as stated is the best guide that we have at present. The standard regarding utilization at the end of the grazing season is necessarily broad. The 10% - 15% probably applies to turf or sod grasses or other hardy species probably including some shrubs. The amount of growth to be left at the end of the season varies with different types and forage species. Even the 25% maximum may be too low on some of our ranges where bunch grasses predominate, since our present information indicates that some of these species cannot be maintained if 75% of their annual growth is taken, that is, leaving 25%. Some of our bunch grasses probably cannot be taken more than 40% or 50%, leaving 60% to 50% respectively at the end of the grazing season. Utilization of browse species should be judged under the same standards by applying them to the current annual growth.

Studies at the Santa Rita indicate for the grass species occurring there, (1) that use to within an inch of the ground at any season of the year constitutes overgrazing which results in material reduction in both density and amount of forage; (2) that grazing within 2 to 2½ inches of the ground by the close of the grazing year constitutes approximately full utilization.

These standards must at all times be kept in mind and used as guides to be applied to the local conditions, especially when determining either utilization or carrying capacity.

NEBRASKA NATIONAL FOREST CELEBRATES ITS SILVER ANNIVERSARY

By John H. Hatton, D. 2.

Dame Nature combined and competed with officials of the Nebraska National Forest in making June 4 and 5, 1927, an occasion long to be remembered. It was the celebration of the twenty-fifth, the Silver, Anniversary of the Forest's establishment under the proclamation of Theodore Roosevelt. We remember President Roosevelt as the great exponent of national and rational conservation in this country.

The sandhills, resplendent on every hand in their best dress of verdant green, bade welcome. The forestry officials and nearby citizens with their attention to all the physical and personal arrangements for the comfort and entertainment of the visitors, said welcome -- thrice welcome; and more than eleven thousand acres of pine clothed hills echoed welcome, welcome to the Nebraska Forest - the fulfillment, the practical demonstration of prophecies and dreams come true.

Was it interesting? Was it inspiring? Was it worth while?

Ask the Honorable Assistant Secretary of Agriculture, MR. R. W. Dunlap, for his impressions. Ask the representatives of the State institutions and departments of Nebraska, of Colorado, of North Dakota, of Kansas, of Missouri, and Wyoming. Question the representatives of the Burlington Railroad. Ask the private nurserymen present whose efforts are given to the aesthetic and utilitarian phases of home and city beautifying, to landscapes and farm forestry. Ask those who struggled with the early uncertainties, disappointments, failures and successes of the project and who came back as to a family reunion. Question the sturdy settlers and their families, 600 strong, and those who pioneered to that region, some of whom looked out for the first time on the transformation of the hills, and contemplated the years at home that might have been used in better serving their pleasures and comforts. Ask Charles A. Scott and the writer, two of the Godfathers, and District Forester Allen S. Peck, one of the early apprentices, as their thoughts winged back to the days of bleak prairies and sand and sifting dunes.

Let us briefly take up here the different points of special interest. First, the visitors were shown the nursery buildings and grounds of fifteen acres, which involve an original investment during the 25-year period of about $80,000. It is a well appointed and efficient plant and deserves most creditable mention. It is named the Bessey Nursery in honor of the late Dr. Bessey of the Nebraska University.

From the nursery the visitors were conveyed in autos over a Forest road and through the older plantations to the Mt. Scott lookout, named for C. A. Scott who was the first Supervisor of the Forest. From this elevation a birdseye view was had of most of the 11,000 acres in plantations and an excellent object lesson conveyed as between the natural hills and those that had been forested.

At this time Dr. G. A. Condra, representing Governor McMullen of Nebraska and director of the Nebraska Conservation Department, told us interestingly of the geology of the region and the origin of the sandhills from the tertiary sandstone, chiefly that of the Arikaree. He also spoke of their economic importance in their relation to livestock production. As he saw and contemplated their forest possibilities he waxed eloquent in an eulogy of the late Dr. Bessey to whom, more than any other person, is due the conception of sandhill coniferous planting. All bared their heads in reverence to his memory and many eyes were moist.

The fternoon platform program was in charge of Colonel Allen S. Peck, District Forester. He outlined the sentimental and practical aspects of the occasion and gave assurance that the Nebraska project was fully at the service of the State. He read letters expressing interest and regrets that they could not be present from Secretary of Agriculture William M. Jardine, from former Chief Forester H. S. Graves, from Senators Howell and Norris, Congressmen Simmons and Haugen, and from C. W. Pugsley, President of the State College of South Dakota, - acting Secretary of Agriculture at one time. In well chosen words he then introduced the different speakers.

Assistant Secretary of Agriculture Hon. R. W. Dunlap of Ohio, himself a farmer and stockman, told of his interest and support of forest questions in his position of responsibility on the National budget review. He showed himself to be a strong friend of forestry and agriculture in their various phases and relations.

The evening was devoted to a program of reminiscences around a large campfire built of wood grown on the Nebraska Forest. Letters calling up early history and extending best wishes were read from Gifford Pinchot from Wm. L. Hall, who directed the 1901 reconnaissance, from R. S. Kellogg, Hugh P. Baker, and E. G. Miller, who with the writer and Mr. Scott were members of the 1901 field party whose investigations and recommendations resulted in the proclamation by Theodore Roosevelt. Telegrams and many other letters were at hand and have been filed with the history of the event. An excellent and most appropriate poem by Ranger Shoemaker of the Holy Cross Forest in Colorado, inspired by the occasion and entitled "Welcome to the Nebraska," was read by Chief of Planting, Fred Johnson, and generously appreciated for its timeliness and cleverness.

The June 5 program was devoted to discussions of papers read by Supervisor Higgins reciting the more intimate details and practical phases of the work, and by C. G. Bates, silviculturist, envisioning the future of the Nebraska Forest. Mr. Bates stressed the use of native seed and planting stock and the studied selection of seed and stock which experience and tests had shown were most resistent to diseases and immune from pests. He discouraged the general use of exotics.

As will be observed this has been an account of an anniversary, not a dissertation on the expectancy formulae of growing trees. Whether an original total investment of $13.35 per acre in Nebraska sandhills or $3.46 per acre in the sand barrens of Michigan, or $10.03 in the mountains of Colorado, compounded for fifty or more years on a crop rotation basis, will show a large money profit, is not the only consideration in our country's reforestation or afforestation needs. We can figure that such activities will show a business return, or we can calculate that they may not, according to the arrangement of our figures. I can cite where advisable thinnings in a thirteen-year old plantation in Colorado has paid the present cost of the plantation, I can also take you to a fourteen-year old plantation in another State that has made the land on which it stands worth more than $1,000 an acre, whereas in its natural State it would not sell for $5. And then I can see groves and shelters when all that comes to me are the joyous caroling of birds, the chirp of squirrels, the scurrying of rabbits, the contentment of farm animals, and the sweet voices of children enjoying their friendliness and shade.

In our ledger account of forest protection, reforestation, or afforestation, we must include the joys and comforts together with the services that trees and forests and shrubbery and flowers about our millions of rural homes would bring. We must not overlook the contentment, the contributions to spiritual good to character and citizenship building, for these are wealth, the richest of all possessions. I have a beautiful tree in my yard at home that is worth a hundred times its intrinsic value. In our goings to and fro through the great plains region what a difference is there between the homes and farms devoid of trees and those which have them! With only a dozen, fifteen or twenty trees or only two or three by actual count in some places, the contrast is too great to measure.

The work of the United States Forest Service in the western Nebraska sandhill region has been demonstrational. It has been successful because trees and thrifty forests and forest conditions have been established. It has set forth and recorded the factors in successes and failures from which to guide the future. It has conveyed an important message in coniferous afforestation. This twenty-fifth anniversary has given large impetus to that message, and the years to come will be those of enlarged vision, multiplied interest, and intelligent activity throughout all the plains region.

ONCE MORE - OUR WOMEN

The Forest Service, as usual in the face of a bad fire situation is indebted to the wives of two Forest Rangers during the past week for invaluable assistance. Mrs. Frieborn at Oracle was far and away the best recruiting agent and worked night and day on the Catalina fire and Mrs. Thompson hustled men and tools to the Huachuca fire. To these two ladies we express thanks and appreciation. - From D. 3 Daily Bulletin

DEATH OF MAJOR FENN

A telegram has been received from District 1 telling of the death of Major Frank A. Fenn on June 19. The Forester has written to Mrs. Fenn as follows:

Mrs. Frank A. Fenn,
Kooskia, Idaho.

Dear Mrs. Fenn:

It is with a very keen sense of personal loss that I have heard of the death of Major Fenn. I know of no man who has served his country and State with a purer sense of high devotion. He was a pioneer in the movement for the conservation of our public resources and was a leader in the change from the former system of reservation to that of opening the Forests to their widest capacity for public use. To the younger men who worked with him he was a tower of strength and inspiration. As long as the Forest Service endures Major Fenn will stand to all its members as a shining example of all that a public officer should be.

To you and your family I send this expression of my sympathy and that of the men and women in the Forest Service who knew and deeply loved Major Fenn.

Sincerely yours,

W. B. GREELEY
Forester.

VISITORS AT THE FOREST SERVICE

Baron H. F. Frk.von Maltzahn, a forester from Munich, Germany, was a recent visitor at the Washington office. Baron von Maltzahn, a cousin of the German Ambassador to Washington, plans an extended tour through the United States for the purpose of studying American silviculture. He is praticularly interested in the red oak and the Douglas fir, both species being successfully grown in Germany. While in this country, Baron von Maltzahn plans to visit the Forest Experiment Stations in the Lake States, Pacific Northwest, California, and in the Appalachians.

Mr. Svent Heiberg, a Danish forester, also visited the Washington office of the Forest Service during the past month. Mr. Heiberg is making a particular study of forest conditions and distribution in this country in relation to soils. He expects to do considerable work this year in cooperation with the Northeastern Forest Experiment Station, Amherst, Mass., on the distribution and growth of spruce in the Northeast, and much of his work will be with M. Westveld of the Forest Service on the White Mountain National Forest in New Hampshire.

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THE PART OF FORESTRY IN FLOOD CONTROL (CONT'D)

Address by W. B. Greeley at Mississippi Flood Control Conference, Chicago, June 3, 1927.

Aside from slowing up the melting of snow and reducing erosion, forests do, in some measure, create a surface reservoir that holds back part of the rain and feeds it into the streams more slowly. The trees and bushes themselves intercept some of the rain and delay its progress to the earth. The mat of litter found under thrifty, unburned forests, sometimes only a few inches deep, sometimes a foot or more, acts like a sponge. It absorbs water until it can hold no more. The water-absorbing capacity of the soil itself is greatly increased by the constant accretions of decaying humus. And innumerable little drainage tubes into the subsoil are formed by the roots of trees and brush.

The storage capacity of forests cannot be measured in exact terms. It can seldom be separated from the many other factors and precisely identified, like a single chemical element in a compound. The behavior of a stream, indeed, is like a complicated chemical substance. It is made up of many different elements and combinations. Forest cover, where it exists, is but one of them. Its influence in retarding run-off may be outweighed by other factors, like the nature of the soil or topography. Yet there is ample proof that such an influence is exerted by tree growth as well as by other forms of vegetation.

A German scientist, trying to discover what becomes of the annual rainfall, found that in open areas 54 per cent of the water precipitated filtered into the earth, while forest land having similar soil and topography soaked up 74 per cent of it. An exact comparison of forested and denuded watersheds was carried on for many years in Switzerland. It showed that the wooded drainage had a more uniform discharge, and that the flood crests from the denuded basin carried from 30 per cent to 60 per cent more water per unit of area than those from the forested streams.

Several years ago a disastrous flood at Pueblo, Colorado, was caused by local cloudbursts. In the canyons most completely denuded, the crest of this flood occurred within six hours from the start of the storm. In the forested canyons which received the same rain, the flood crest was not reached until from 18 to 48 hours after the beginning of the storm, and the damage resulting was materially less. Preliminary observations on another watershed in the Rocky Mountains indicate that cutting off the forest cover increased the average height of flood crests and the ratio between high and low water stages by about one-half.

A study made by the Forest Service in Southern California showed that within three years after the brush cover on a canyon drainage was destroyed by fire, the soil lost 45 per cent of its water-absorbing capacity. This was due partly to the direct loss of humus and litter and partly to the rapid erosion of the surface soil, exposing the more compact and impermeable subsoil. A heavy rain occurred in the Southern California mountains early in 1915. The run-off from the small canyon to which I have previously referred, which had been denuded by fire during the preceding fall, exceeded that from all other streams which experienced the same storm. Its flood peak attained the unprecedented flow of 700 second feet per square mile of catchment area. The value of forest and brush cover to streamflow is so well recognized in Southern California, where stored water is the life blood of Agriculture, that all agencies, federal, state and county, have joined with the water users in a $2,000,000 program for protecting and extending the vegetative cover on their watersheds.

A study made by Professor Bode in Iowa in 1921, showed that even small woodlots in a prairie region have a decided influence upon the absorption of water by the soil beneath them. Not only the average, but the maximum and minimum, water contents of the woodlot soils were found to be greater than those of soils of the same character and slope in open prairie and farm land. In 1910 the Forest Service investigated a number of streams in the southern Appalachian mountains where floods and high water stages had been on the increase during the preceding 30 years. These could not be accounted for by changes in precipitation. But it was apparent that the irregularity in streamflow had become most pronounced in drainages where the most extensive deforestation had taken place.

I will not weary you with further illustrations. Let me sum it up in saying that by creating shallow surface reservoirs forests can help modify flood conditions. They cannot prevent large floods when heavy rains surcharge their limited storage capacity. But they can and do help in ameliorating somewhat the flood conditions with which our engineers must grapple.

Now what can be done to bring the protecting and conserving influence of forests to bear most effectively upon the Mississippi floods?

Every forest fire in the Mississippi basin tends, sooner or later, to augment flood conditions. Every abandoned or neglected piece of poor hillside farm land has the same tendency. Destructive lumbering or overgrazing, which leaves naked soil behind them, are sure to contribute, at one time or another, to some flood crest. Some of these conditions can only be remedied by the type of educational extension in agriculture and forestry now being conducted by most of the states in cooperation with the Federal Department of Agriculture. Some of them can be remedied by more direct means.

In the main, the existing federal laws are adequate. We have a law under which the national government cooperates with any state in the systematic protection of forested and denuded areas from fire. The law is all right; but we need more actual protection under its terms.

We have a law under which the national government cooperates with any state in promoting tree planting on farms, by furnishing the planting stock. This is precisely what is needed - for flood control - on a large acreage of abandoned or worn-out hill farm land in the Mississippi basin. The law is sound; but we need a great deal more timber planting under its terms.

We have laws under which National Forests may be created anywhere on the drainage of a navigable river. These laws are adequate. The Government has established and is extending National Forests on several watersheds within the Mississippi basin. But we need many more of them. And we need many more state forests to supplement those in national ownership. They will pay good dividends in timber growth and forest industries, aside from their benefits to flood control. But public forest ownership is particularly urgent and warranted on critical areas of denuded or eroded lands which are direct sources of destructive floods.

I wish to propose specifically that in connection with the study of flood control measures on the Mississippi from other angles a survey be made of the forested, denuded, and abandoned farm lands in the basin. This survey should set forth the areas:

First, where more complete protection from forest fires is needed,

Second, where extensive tree planting should be brought about; and

Third, where public forest ownership, either state or federal, is a necessary phase of flood control.

The purpose of such a survey should be to submit specific recommendations for the guidance of the federal agencies in their administration of the present forestry laws, or for additional legislation if needed; and also to outline the cooperative share in attaining the ends sought which should be assumed by the several states.

Forestry is simply a form of every day land use. It cannot be considered apart from other forms of land use which also afford natural and simple ways of bettering water storage and reducing erosion in the Mississippi basin. Undoubtedly the flooded regions are suffering to-day from the loss of an enormous area of mellow, permeable top soil in the drainages above them, through poor methods of farming. That is a problem for the agricultural expert; but it should not be left out of this picture.

On the western tributaries of the Mississippi, there is an enormous acreage of grazing land in the open public domain. Grazing on these areas is wholly uncontrolled and usually excessive. An experiment in Utah made by the Forest Service showed that the run-off from rainstorms on overgrazed land was seven times as great as on adjacent areas that were moderately and conservatively grazed. Reduction of erosion is one of the clearly recognized aims of grazing control in the National Forests. The Secretary of the Interior has strongly recommended that grazing on the open public domain be also placed under regulation. It should directly benefit the conservation of forage and the stability of the livestock industry. But it cannot be left out of our present consideration of ways and means for reducing floods.

Nor should we overlook the natural storage afforded by swamps and overflow bottoms on the upper tributaries of the Mississippi. The drainage of swamps and overflowed lands, destroying natural water storage for the sake of precarious and often unsuccessful farming, has gone too far. Some of these areas should be restored to their natural storage function and their additional service as breeding grounds for fish, water fowl and fur bearing animals. Let us have fewer attempts at ill advised agriculture and more swampland fish and bird reserves like the Winishik bottoms along the Mississippi.

All of these elements in the problem, forestry included, bring us down to the bedrock of rational and productive use of land. It offers many public benefits aside from flood control. It offers a future supply of timber, the conservation of forage, the saving of soil fertility, the profitable use of idle land, the preservation of valuable wild life, and a more diversified and stable agriculture. Flood control may, if you please, be regarded as a by-product of other national benefits from the effective use of land.

Let us see the picture in its true proportions. As checks upon big floods, forestry and its allied forms of natural storage take a secondary place. They belong "upstage." Immediate relief must be sought through the skill of the engineer. But behind and supplementing the levees or other structures that must be built, we get back to the land. And we should not fail to restore, as far as it may be done, the natural storage and protection from erosion that may be derived from common sense and practical wisdom in our everyday use of land.

Copies of the Agriculture Yearbook from 1917 to 1925, inclusive, excepting 1920, may be obtained by applying to the Washington office.

TEN YEARS OF PROGRESS

By J. C. Kircher, Washington

In cleaning out some old papers from a desk the other day, I ran across a 1916 activity cost statement and it naturally aroused my curiosity, which resulted in some comparisons with the activity costs of 1926. At the outset it must be stated that comparisons are hard to make and of doubtful accuracy.

In 1916 there was a system with 86 varieties of activities, now there is a system with only 28. It is nearly impossible to work the 86 of the old system into the 28 of the new, yet there are at least two activities which have not changed to any great extent. They are timber sales and grazing. The only difficulty arises over Job to Job, which under the new system is absorbed in the activity to which it contributes. Job to Job has been disregarded in the 1916 figures used for the comparisons because of the difficulty in approximating that portion of it which should be charged to each activity. If apportioned according to total charges to productive activities, it would raise the 1916 figures about 2%, which is small enough to be disregarded.

With this brief introduction, let's look at a few of the timber sale and grazing figures.

In 1916 timber sales cost $219,956 and there were 595,022 M feet cut. In 1926 there was nearly twice as much cut - 1,086,016 M feet and it cost $450,250 to handle this business. The cost per thousand feet cut was, in 1916, 37¢, in 1926, 37.8¢, which is an increase of only 2%.

If Job to Job were included in the 1916 figures, it would raise the cost per thousand just about to the 1926 figure. Assuming that charges in both years are accurate, it didn't cost any more per thousand feet in 1926 to handle timber sales than it did 10 years ago.

By Districts, the direct cost per thousand feet cut is

	1916	1926	% Increase or decrease 1926 over 1916
D-1	$.438	$.642	+47
D-2	.484	.481	-1
D-3	.355	.741	+109
D-4	.604	.545	-11
D-5	.281	.250	-11
D-6	.173	.235	+36
D-7	.939	.640	-32
D-8	---	.381	---
Total	$.370	$.378	2

The District figures show considerable variation. D-2 is handling sales at about the same cost, while D-4 and 5 have reduced costs 11% and D-7 by nearly 1/3. The other 3 have gone up considerably. In fairness to D-3, it must be stated, however, that the 1926 figure is much higher than for any other year, due probably to a lot of preparatory work on sales where there was a small cut. The 1925 figure is more representative, and if this had been used the increase would have been 61%, which is still a lot.

During the period, salaries were reclassified, resulting in an increase of about 20%. At the same time standards of silvicultural practice have been raised and cutting areas are left in much better shape than they were 10 years ago. The broad conclusion which can be drawn is that the Service of to-day, at the same cost per M, administers its timber sale business with higher-salaried men much more effectively than it did 10 years ago. The figures are a good lesson in progress in efficiency of administration.

On the other hand, judged on D-2 standards, there is still apparently a chance for reduction in costs without loss of efficiency in several of the Districts, notably D-1 and D-3.

In grazing administration there has been an increase in total expenditures from $199,065 in 1916 to $378,995 in 1926, which is 90%. The number of stock using the

National Forests has been reduced about 10% during the 10-year period. No attempt, however, has been made to figure cost per head for the two years, but instead, total direct costs have been used. These are by Districts.

Direct Cost of Grazing Administration

	1916	1926	% increase 1926 over 1916
D-1	$20,539	$51,422	+151
D-2	34,881	56,029	+61
D-3	33,154	76,876	+132
D-4	67,258	118,074	+75
D-5	18,133	37,438	+106
D-6	24,390	38,088	+56
D-7	710	1,063	+50
D-8	---	5	---
Total	$199,065	$378,995	+90

The largest increases are in Districts 1, 3 and 5, all of which more than doubled. The rest also show large increases. The figures indicate that it costs about twice as much per head to handle grazing to-day as it did 10 years ago. The reason for this undoubtedly is that during the period there has been a rapid development of scientific grazing control. Ten years ago, little attention was given to such things as grazing capacity, salting, distribution and other control measures. The Ranger was largely a policeman and his main duty was to prevent trespass. To-day, of course, he is still that, but in addition is expected to put a constructive grazing control policy into effect and keep it going. This takes more time and costs more money. Whether the doubling of the costs for the Service as a whole or the increases in the individual Districts are justified, I do not know, but of course it is a well-known fact that the Rangers' grazing work of to-day is much more complicated and much more efficiently handled than it was 10 years ago.

Here, then, are two activities, the unit cost of one of which has remained stationary, the other doubled in the past 10 years, and this in a period when salaries have been advanced about 20%. Qualitative standards of both have increased a lot, yet in timber sales all of this has been accomplished without spending any more per thousand, while it costs twice as much to make that cow perform as we want her to.

What then is the answer? I do not know, but strongly suspect that much of it can be found in the fact that in 1916 timber sale practice had already been well developed and needed only touches of refinement, while in grazing we were still largely "riding the range" without a very clear idea what for.

The way is open for anyone else who can produce a better "alibi".

WHEN APRIL COMES TO THE CISPUS

By Lester Moncrief, Rainier.

Forest fires swept through a portion of the Rainier Forest in 1902 and 1910. Some 91,000 acres of the Cispus River watershed were left gaunt and forbidding; later it was estimated that 15,000 acres would need replanting. This is known as the Cispus Burn. Scattered about through the valley are settlers, originally from the Appalachians, none too friendly to the Service of an earlier day. They are now enthusiastic tree planters. Planting up the Cispus began in 1920 and now over 6000 acres have been restocked.

Life on the Cispus is divided about equally into three parts: Summer, flaunting its smoky flag of death and destruction, everyone standing by for an engagement, strained and anxious, and as Ranger Kirkpatrick might say, "ready to shipwreck the first hostile move in the bud"; Winter, with its peaceful monotony, the hard hikes through the snow, the fat venison in the pot (so it is rumored); and then April, industrious April, when folks pep up and new faces mingle with the old and the little trees are planted. Remove the planting and you would take away April, one-third of the Cispus year.

When you first come in they don't say, "What are wages this year?" but "How much will we plant?" And at the end of the job "How much next season?" Life shouldn't be so indefinite as that. Uncle should figure out a way to put planting or its equivalent definitely on the Cispus April calendar.

It's good business, planting is, herein the Cispus. It trains men to fight fire. Lots of things are like that, black and white, day and night, sunrise and sunset, planting and forest fires--they are inseparable companions. Learn about one and in the light of contrast you see the details of the other clear and sharp. And in a great burn, fire fighting is the keynote of existence.

Cispus folks are good planters, better than those from outside. They are lean and rugged and mountain-wise. They are nature lovers and imitate her ways; they stand straight like a tree, leap a log like a deer, fall down a hill like a bear, ford a creek like a fish, eat like a hog. They take pride in little things and make an art out of planting. One will throw the planting hoe most unerringly to the spot for the next tree, one has a double wrist movement that winds the roots stiffly to the bottom of the hole and sprays them out perfectly, another has a peculiar blow and shuffle, so fast the eye cannot follow. They are jealous of such accomplishments. And like all artists, they are temperamental. If you change a man's planting bag or his hoe or his place at table, you have to fire him, for he is so upset he is worthless.

They have such a vitality and joy in living that you are not much afraid to ride away at the end of April and leave your plantation in their care for the summer. And next spring there they are again, faces newly chapped where the winter whiskers grew. "How many acres this season?" If you had to say "None" probably they would sneak off to the woods and pack over some seedlings. For April on the Cispus means planting.

About 750 acres were planted this year in the Cispus Burn, 75% Douglas fir and 25% Noble fir. Costs were above normal because of bad weather and also because having both high and low altitude stock required the operation of two camps. Part of the time four ten-men crews were used. Planting was completed May 8. The trees came from the Wind River Nursery in perfect condition and with the cool, wet spring on our side the survival should be high.

FLOOD CONTROL STUDY

So much importance has been attached by the Service to the Mississippi flood situation that Colonel Greeley has designated as an all-Service project the collection of material bearing upon the relation of forests to flood prevention and control in the Mississippi Valley, and he has placed Mr. Sherman in charge of the project which is now under way and being carried out in accordance with an outline prepared by Messrs. Zon, Munns, Peters, and Ashe.

Mr. Sherman has announced that the data will be assembled under five regional sections assigned as follows:

The Upper Mississippi and its tributaries, excepting Missouri, from its source to Cairo - R. Zon.

The Ohio River from its source to its mouth, together with all tributaries - E. F. McCarthy and personnel of the Ohio-Mississippi Forest Experiment Station.

The Missouri River with its tributaries, divided into three sections:

From its source to the mouth of the Cheyenne - D-1.

From the mouth of the Cheyenne down to and including the Kansas River - D-2.

Within the State of Missouri - W. W. Ashe.

The Arkansas River with its tributaries - W. W. Ashe assisted by The Southern Forest Experiment Station.

The Lower Mississippi to include all drainage from Cairo to its mouth, except the Arkansas River unit - Southern Forest Experiment Station assisted by W. W. Ashe.

The Red River - The Southern Experiment Station assisted by W. W. Ashe.

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Associate Forester Sherman will attend the Arkansas River Flood Control Conference to be held at Tulsa, Oklahoma, July 14 and 15, to participate in the discussion of the measures of prevention and control necessary to adequately solve the Mississippi flood problem.

Representatives of the Bureau of Soils and the Bureau of Public Roads will also attend the Conference to present the Department's point of view on the relation of soil conservation and rural engineering to the situation.

PROPER RELATIONS WITH THE PUBLIC

By Dana Parkinson, D. 4.

In recent years, big business and little business have realized more and more how accountable they are to public opinion.

It was no more than logical that a Government branch, which calls itself a "Service", which aims to retain its enthusiasm and to stay progressive, should also realize its responsibility to public needs and desires. Certainly no big business is any more accountable to public opinion than is the Forest Service. No one desires more to increase its usefulness.

In the long run, the Forest Service depends for its prosperity and usefulness upon what the public thinks about it. What the public thinks depends upon the character of service and the ability to make that character of service known.

But the first step in making that service known, that is in convincing the public, is to convince ourselves. A little introspection might not be amiss. Are we sure that our data on the forest resources are in usable, convincing form? Are any of us relying merely upon general observations when accurate records can be obtained? Is our record of past use in shape to prove beyond a reasonable doubt whether the range is holding its own or being depleted? Do our records depict clearly how the timber will respond to various methods of management?

Surely foresters have information which the public should have and it is our duty and responsibility to see that the public is informed; to see that the public knows our ranger district and our forest, knows what is taking place there, what needs to take place there and what opportunity for further service is offered.

We have put out propaganda on fire prevention until the public is developing a fire conscience. The Ranger has been depicted as the guardian of the forest until the public regards him as a protector and patrolman. Very seldom, however, is a Ranger regarded as a developer or a trained manager of resources. Is it not feasible to better acquaint the landlord with the various phases of range and forest management with which the Ranger deals? Field exhibits of actual work might help. The following suggest themselves:

1. There are cut-over areas through which highways carry thousands of people. Appropriate signs can be placed on the remaining trees to explain why these were left; on stumps to explain the types of trees removed and why; on formerly suppressed trees to explain the increase in rate of growth expected. Sites of burned brush piles might be designated and attention called to the reason for burning and to the reproduction protected. If the cutting includes a camp ground, attention might well be called to the protection of the camp site and to the fact that logging and recreation can live together without injuring a camp spot, and often with improvement to the camp spot.

2. There are sheep allotments adjacent to public travel, which could be made true-to-life exhibits: with maps to show deferred areas and plan of management; with descriptive matter to show that the ground cover was not suffering; with fenced enclosures to compare grazed and protected spots; with explanations to controvert the old idea

that a sheep range means a dust bed. We might even go so far as to exhibit sheep allotments which include recreation areas and show how the area actually used for camping is protected and how areas especially attractive from a recreational standpoint, are closed to grazing until the tourist season is over or flowers have gone to seed.

Such exhibits will put the public in direct contact with the actual field methods of managing their resources.

Proper relationship with the public means anticipating misunderstanding and being equipped to meet it; expecting and being prepared to deal with indifference, ignorance, and a continuous flow of new contacts; recognizing that interest of users is constantly waning and needs stimulating.

PR aims therefore to secure understanding and support and to promote use. Neither can be accomplished without publicity. Word-of-mouth publicity, or what the folks have to say about us, is the best kind of publicity, but we can not depend upon people telling all we want them to or upon word-of-mouth reaching all we desire to reach. Publicity must be thought out and be continuous. Not only must the interest of an individual be retained after it is once secured, but new and more influential contacts must be established. In these contacts the Forest Service should be and I think aims to be characterized by -

1. Sympathetic understanding of what the other fellow wants and convincing data at our command with which to handle his problem.

2. The habit of adjusting policies to the needs of our customers, rather than allowing policies to become hidebound by tradition.

3. The practice of developing more use of the Forests and finding new ways of serving our landlord, the public.

Excellent PR work is being done every day by the rangers and supervisors' offices, some of which is premeditated and some conducted unconsciously. As the progressive public service corporations are realizing their dependence upon crystallized public opinion, so must we. This crystallizing of public opinion, this development of proper relations with the public can not be a hit or miss affair, and neither can it be handled by one branch. This activity is too intricate, too far reaching and too closely interwoven with all of our work for one or for a dozen PR men to handle. Every one must give it study and exercise his ingenuity and his resourcefulness in applying PR to his particular line of work. In developing this PR work, it need not be considered a new activity, but rather an additional phase to all of the old activities.

To repeat, what the public thinks depends upon the character of service and the ability to make that character of service known.

PUBLIC RELATIONS

The three forces, then, which are injecting into the conduct of business a new hazard are fashion, new ideas, and changing habits; but what makes them formidable is the speed with which they spread and the unanimity with which they are adopted. Advertising is responsible for both the speed and the unanimity. The continuing body of advertising has produced a receptive state of mind. Advertising is accessory before the fact as well as after. It has created a public, almost coextensive with the population of the country, that reveals an amazing willingness to adopt anything, or, to put it more emphatically, a determination not to be left behind--a sort of mad scramble to have, do, and be whatever is popular at the moment. The individualist is apt to be lonely.

--Earnest Elmo Calkins in The Atlantic Monthly.

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WHEN SUPERVISORS GET TOGETHER - OUTDOORS

By Jno. D. Guthrie, D. 6.

The North Pacific District tried out this spring a new type of Supervisor Meeting. This was what might be called a demonstration on the ground conference, instead of endless indoor discussions. It was to compare physical resources with these resources under the feet and around the discussers.

All D-6 is divided into two parts, the Douglas firs, or Westsiders, and the yellow pines, or Eastsiders. Therefore, two meetings were decided on, the first to be held May 6-16, at Darrington, Wash., with 10 Supervisors; and the other, May 23-June 2, at Bates, Ore., with 12 Supervisors.

On the first day at Darrington, on the Snoqualmie Forest, the group divided into two sides, one with inspection forms, the other without, and began by inspecting the Ranger Station layout. The Station house, tool house, barn, scalers' house, bunk house, office, speeder house, toilet,--all were gone into and over carefully. And be it said, little escaped the eagle eyes of nine Supervisors and 8 District Office men TRYING their best to find something wrong. Later the two groups met and went over their findings, with profit and some fun. Then over two days were spent at a fir logging camp. Here fire equipment, utilization, brush and brush burning, seed trees, boundaries, right of way, sanitation, and sales contracts were all delved into. The group method was followed here also. Later another sale area was gone over.

Trails and trail construction, and the use of plows, graders (Beatty's and others), and horses were given a day. An inspection of a "way" brought out such an interesting argument that a pack outfit was taken over it, with some 25 foresters trailing along, to determine how high a log had to be in order to interfere with a pack animal going over the trail to a fire. Then two road projects were given the twice over, amid steady rain, and almost every curve had to be measured. There was much discussion of super-elevation, turnouts and inslopes. Two groups again vied with each other in picking up specifications lapses and bad practices. An emergency suspension footbridge over the Sauk River was tried out and inspected.

Naturally there were some subjects which did not lend themselves to field demonstrations. Such were Land Exchanges, Sales Fire Plans, PR Work Plans, Range Management Plans, Ranger Diaries, Supervisors' Plans of Work, Management Plans and Policy Statements, but the weather being fine most of the time, some of these indoor discussions were carried on outdoors.

The Snoqualime Forest was the host; the Darrington Ranger Station was very comfortable; there was a Cook who surely knew his stuff; and "horseshoes" occupied the hours outside of work, eating, and sleeping. The State Forester and the Chief Fire Warden were callers; the weather, except one day, was very fine; the cost of the meeting was low, and those attending seemed to get into the game in good shape; and the meeting was well worth while--but it was pretty well agreed that 10 days is too long for even an outdoor meeting in the month of May.

Then came the yellow pine meeting on the Whitman Forest, at Bates, Oregon, at the mill town of the Oregon Lumber Company. About the same general schedule was followed though range management came in stronger; several special uses were inspected "in place"; trail plows, graders, and road equipment got a better showing; and of course Sales methods and practices received more time. Physical resources were physically recognized strongly.

Logging camp sanitation was made real when a sanitation plan was worked out on the ground for a new camp about to be put in. Utilization, low and high stumps, burned and unburned brush, felled and unfelled snags, cleared and uncleared rights of way, all came in for large discussion with the objects of the discussion right before the eye. Cut-over private lands and cut-over Government lands were compared. Some brush was even burned (it was a cold, rainy day.) Three sample plots 5 years old were examined, with some misgivings. Sample appraisals for land exchanges were made, on the ground. Some yellow pine plantations were seen and proved of great interest to everyone.

A sheep allotment was plowed through, lodgepole jungles and all, and a guess made by everyone on how many sheep that type of range would carry and what it was worth. What was left after a 1926 fire was looked over-trenches, back fire lines, etc.

One night session was held when a grazing permittee showed up and put on a meeting, which incidentally brought out some interesting phases of G-4 permits. Indoor sessions were held to the minimum. There was some lively argument over PR Work Plans and "key men", and a reel of fire movies was shown one night. Fire signs and their posting, and a "Smokers Code" were discussed. A road project on the Malheur was inspected, curves measured and culverts looked into, also a new road camp, dinning and cook car.

But the big day was when the Forester himself was there and everybody turned out and marked 10 acres of pine. A "Marking Board" had previously gone over the area tagging each tree with a number and deciding which numbers should be cut and which left. Each man then went over the area and put down opposite the number whether to cut or leave. It was a serious business. Here was the Chief Forester, yonder was the District Forester, while spread over the hillside were Assistant District Foresters, 12 Forest Supervisors, and an Assistant Supervisor or two for good measure, all looking up at the tops of trees, walking around them, and then backing off and looking at them again. Finally, the bunch all gathered around a camp fire (it was a raw day, and Bates is 4030 feet elevation) and after lunch had been eaten, the Board read off its decision on each tree. Naturally there were disagreements. If there were 8 or more disagreements with the Board on any one tree, that tree was checked off for reexamination by the entire party. Quite a large number of trees were reexamined and in more than a few cases the board was voted down by large majorities (and with loud yells of glee). The Board had left 120 trees out of 300 tagged. The number to be left by the inspectors varied all the way from 70 to 130. T'would be telling tales to say how many were left by the Forester and District Forester.

The reexaminations were the best fun of all. There was great argument about them. "I'd certainly cut that tree"; "That's a SPLENDID seed tree"; "It's got a fire-scar but it's a tight scar"; "That tree won't stand 6 months after this area is cut"; "That tree is through--It'll never grow any more"; "It's a line tree", etc.--we've all heard the arguments.

And so at last the Bates meeting came to a close. The Supervisors spread out again over Eastern Oregon and Washington. The Supervisor of the Whitman was still pleasant and smiling. that last day as he bade the crowd good-by--perhaps that's why he smiled.

After reading the above, C. M. Granger adds this summary:

For our own future guidance and the benefit of any who want to try the plan, we say:

1- The field meeting is so much better than the old type of smoke-filled -room meeting that the latter will be a rarity from now on.

2- Hold the meeting to 7 days if at All possible.

3- Decide in advance exactly what you want to do, how, where, and when, and stick chiefly to things that can be seen concretely on the ground. Have a written schedule.

4- Do such indoor discussings as is necessary in the morning; not more than half a day of it at a time.

5- Announce each night the ensuing day's program where any change is made from schedule.

6- Wind up with a good lively field day.

7- Have a good cook and plenty of horseshoes.

FLOOD CONTROL SURVEY

The flood control survey has been declared an emergency job by the Forester Mr. Sherman has been placed in charge, and the entire personnel of the service has been instructed to assist to the extent necessary in bringing together the desired information. The object of the survey, which will be completed by early fall, is to determine the areas or watersheds within the Mississippi drainage basin on which because of rainfall, character of soil, topography, and other controlling factors forest cover has an important protective value.

Under the plan followed, the survey will define the main tributaries of the Mississippi to be treated as units, and for each of these tributaries data will be brought together on the acreage, the amount and character of the precipitation, the more essential or more common soil classes, features of physiography, including ruggedness of topography, natural reservoirs, etc., the general character of the vegetative cover, and a rating of the value of the protective cover as a means of flood prevention and control.

Considering especially character of soil, steepness of slope, and character of precipitation, a rating will be given the protective value of forest cover as an element of the particular watershed. The plan is to eliminate watersheds where on account of these factors the maximum prortective influence that a forest might exert would have a comparatively minor effect upon stream and flood conditions, and to locate the areas where, because of soil, topography, and precipitation, the effect of forest cover would be important.

A somewhat similar rating of the protective efficiency of the existing forest cover on the Mississippi system's watersheds is proposed. The plan contemplates putting all this data as far as possible on a set of maps for ready consultation in the formulation of comprehensive plans for flood prevention and control in the Mississippi Valley. The Forest Service data will be correlated with that of the War Department and other agencies participating in the investigations and conferences designed to arrive at a planwise program for the control or prevention of floods on the Mississippi.

The Americana Annual (An Encyclopedia of Current Events) for 1927 contains articles on Lumber" by R. V. Reynolds and "U. S. Forest Service" by Ward Shepard. The Annual has wide distribution and is used extensively for reference.

ONLY A BOY BUT --

He is going to carry on what you have started.

He is going to sit right where you are sitting and attend to those things you think are so important - when you are gone.

You may adopt all the policies you please, but how they are carried out depends on him.

If you make leagues and treaties, he will manage them.

He is going to sit at your desk in the Senate and occupy your place on the Supreme Bench.

He will soon assume control of your city, your state, and your nation.

He is going to take over your prisons, your churches, your schools, and your corporations.

All your works are going to be judged, praised or condemned by him.

Your future reputation is in his hands.

All your work is for him and the fate of the nation and humanity is in his hands.

--San Diego Rotator.
Clipped by D. 6.

COW MONTHS AGAIN

By E. D. Sandvig, Custer.

Since Mr. Abbott in his Service Bulletin article of May 23 takes issue with the cow months scheme the disadvantages he mentions seem to offer the opportunity for further presenting the desirable features of a cow months method of selling and handling our grazing resources.

Mr. Abbott places his first shot right into the middle of the utilization question. He is fearful that a congestion of stocking will take place in the forepart of the grazing season and that all control will be lost over the distribution during the season of such use as a range possessed in carrying capacity or, if you prefer, cow months capacity. Why not divide our season into periods of use, that is, control the degree of stocking in this manner: A range possessing 10,000 cow months capacity could be allotted so that but 15%, or 1500 cow months use, would be permitted during the forepart of the season, then 50 per cent during the middle of the season and whatever remained in the latter part. I cite these percentages just as illustrations, but they bring out the possibilities of getting away from concentrated use in the spring and at the same time of concentrating your stocking at whatever time of the year your experience, judgment, and other factors dictate is the best practice for the range. By causal observation over several ranges, those on the Helena Forest included, it is evident that the peak of stocking or the largest number of stock you can find on the range at any one time is several weeks after the opening date and is neither at the beginning nor the ending of the season. The method I have outlined just refines and recognizes what is happening in a general way on a good many of our ranges at the present time. It allows us to approach in a practical way that long sought after objective permitted use equaling actual use, which in turn means carrying capacity. By the use of cow months the heaviest utilization can be concentrated at periods when the range is best able to stand it.

Mr. Abbott's second point is not clear to me in its meaning, since if by control he means fences or other barriers nothing additional is involved and if he means administration, costs should not vary materially, and, as to the cost of distribution, here on the Custer we have the gall to ask the permittees to distribute their own stock.

Several times in the writer's experience permittees have asked why they couldn't use their range with a certain number of stock for a short period and then remove them for that season. The stockmen surrounding the Custer may be vastly different from those elsewhere. The danger Mr. Abbott points out is easier overcome by cow months than under our present scheme.

In regard to John Hereford losing out through shipping his beef, that is a matter of little importance and was brought up largely as a point for the opponents of cow months to waste their heavy artillery fire on, but also illustrates in a simple manner one usage for cow months. If we go to the trouble of establishing a special season to take care of a situation like John Hereford's why not in the first place handle it under the cow months plan and eliminate a hodgepodge of special seasons. If enough seasons are established you are on the brink of the cow months plan without the elasticity that scheme affords, so why not adopt it without the garnishment of a stiff, unbending, clumsy permit for a set number of bovine critters?

THE LEAVEN SPREADS

By N. F. Macduff, Cascade

The splendid fire record of the Southern Pacific Railroad Company in the construction work on the new Cascade Division (Natron Cut-off) in 1926-26, is apparently having its good effects.

At a recent conference with Superintendent of Operation E. L. King, of the S.P. Co., and his immediate subordinates, with Ranger McFarland and myself, Mr. King indicated that his company was inclined to be very liberal in financing forest fire prevention along the Cascade Division of their Oregon line. He stated that three tank cars with powerful pumps, two lines of hose, and other tools and equipment would be stationed at strategic points along the line; that emphatic instructions would be issued to all employees that all fires must be immediately attended to either by employees or by report to Forest officers (for distant fires); that special fire tool caches would be established at section houses, and three fire wardens would be employed to assume the company's fire responsibility and interest. At Ranger McFarland's suggestion, Mr. King said that he would have his roadmaster, fire wardens, and possibly section foremen attend our fire guard training school at Oakridge in June. Mr. King stated that the higher officials of the company were very much concerned about fire protection along the new line and were willing to go to considerable expense in connection therewith, and that the company realized that the forest along this line were just as big an asset to the Southern Pacific Company as they were to the Forest Service. He asked that a supply of fire slogans be furnished him (which was done), and later he reported that a dozen or so had been printed on 5,000 menu cards to be used on their diners during the summer.

This is certainly a most welcome change in attitude on the part of the Operating Department of the company, which except for local employees has heretofore seemed lukewarm if not indifferent to fire protection. The example set by the Construction Department in turning over, last fall, the new line without any fire scars has undoubtedly had some influence in securing this result.

HE TOOK HOME THE BACON

Ranger Welsh reports another cabin broken into. The trail crew working on the San Mateo-Blue Mountain trail had packed part of their provisions down to the old Lookout Cabin at the foot of San Mateo Peak and cached them their for safe keeping. When they returned for them, however, they discovered the door had been pushed in and everything turned upside down. After checking up and looking for clews, Schuyler Wren found that the perpetrator of this deed was a large bear, judging from the footprints he left behind. The only loss of consequence was a slab of bacon and a part of a sack of flour, not considering the loss of sleep which the trail crew has suffered since this occurrence.. – D. 3 Daily Bulletin.

HEADQUARTERS FOR NEW OHIO-MISSISSIPPI VALLEY STATION

Headquarters of the new Ohio-Mississippi Valley Forest Experiment Station will be located at Columbus, Ohio. The new station will be affiliated with the Ohio State University and the Ohio Agricultural Experiment Station at Columbus and will have jurisdiction over the research activities in the States of Ohio. Indiana, Illinois, Iowa, Missouri, western Kentucky and Tennessee, and northern Arkansas.

E. F. McCarthy, Assistant Director of the Appalachian Station, has been appointed Director. Other members of the station will include Junior Foresters John H. Hanley of Akron, Ohio, and Leonard F. Kellogg of Iowa, and Associate Forest Ecologist, Bernard S. Meyer of Columbus, Ohio.

COOK (ED) TOPOGRAPHY

The Galiuros Division of the Crook is rough! No less a personage than Sam Sowell the Ranger, admits it. Probably he would boast about it but he may want to trade it off before "blimps" commonly occur on the "7¢ per mile contracts". I don't want to discredit Sam's trading stock, but "roll your own" from these "makin's": On May 3 Supervisor King and I while riding in the Galiuros observed a cow fall out of her range into another allotment. (Sam says this explains most of his inter-allotment trespass). A few hours later Rex and I were watching a rock squirrel make his get-away. We both observed the act which caused Rex to exclaim, "Did you see that rock squirrel shift into second?" The next day Sam and I "jumped" two white tail deer on some of the lower, LESS ROUGH slopes. One of them in her attempt to be gone, and when about 100 yards from us, fell flat on her side. She did considerable scrambling to regain her feet. She was in good condition!: Next? – D.A.S., D 3. Daily Bulletin

RIBES HERBARIUM NEEDS BUILDING UP.

Dr. Carl C. Epling of the University of California, Southern Branch, visited the Washington office early in July. Dr. Epling was particularly interested in the work the Forest Service is doing in the western white pine type and in the possibilities of forest management as a means of control for the blight. While in Washington, Dr. Epling looked over the herbarium with particular reference to learning the extent of the range of various species of Ribes. He called attention to the fact that the Service collection, while good, did not have as many Ribes as it should nor as many citations of Ribes distribution as might be wished for. There is an excellent opportunity for the field men to be of real service to pathologists and to forestry through building up the Ribes herbarium. Dr. Epling will visit some of the western forest experiment stations this summer.

MOTORISTS ASKED TO COOPERATE IN PREVENTING FIRES

Appealing to California motorists to cooperate with the State and Federal agencies in protecting the State's forests during the approaching fire season, Governor C. C. Young has called upon autoists and vacationists t live up to the "four commandments of the road" set up by the State Forester's office.

Governor Young's statement to the motoring public follows:

"California motorists have a most important part to play in the movement to protect and conserve the State's natural resources. They are directly benefited by the conservation of the forests and enjoy more than any other class of the recreational advantages afforded.

"Every autoist who tours the State's forest-bordered highways and spends his vacation in these timbered playgrounds should feel a personal responsibility in preventing and suppressing fires.

"After consultation with State Forester Pratt, who is charged with the direct responsibility of protecting the State's timber and natural resources, it appears that the motorist can best serve the State in this regard by observing the following rules:

"First, open mufflers in a forest, brush or grass covered area often start serious fires. Keep your muffler closed and aid in having other motorists follow your example.

"Second, throwing burning tobacco or matches from a moving vehicle on all roads and highways is prohibited by law. Help enforce this wise legislation.

"Third, State law requires that you extinguish your camp fire upon breaking or leaving camp. See that it is thoroughly done and remind other camping parties of their responsibility.

"Fourth, every autoist should consider it his duty whenever possible to put out small fires which may spread and cause serious damage. If unable to combat the blaze alone, he should notify the nearest ranger or forest fire lookout.

"Cooperation by California's great army of motorists in this manner will save thousands of acres of timber from destruction. It will permit the State's fire fighting force to cope with more serious situations which the individual can not handle; and it will insure conservation not only of the State's recreational centers, but also of its commercial timber supply and its watershed resources." - From D. 5. Bulletin.

DISTRICT TWO PLANTING IN 1926

By F. R. Johnson, D. 2.

The year 1926 established a new record for planting in District 2, a total of 7,891 acres having been planted. This is 2101, acres more than was planted in 1925 and 671.76 acres more than the previous high year of 1924. The increase is largely due to a favorable planting season, to the efficient record made by the Michigan Forest, and to the Pike and Nebraska exceeding their allotted areas.

An increased interest in planting is evident. Forest officers are desirous of starting projects on many districts, having determined something of the species and methods applicable by means of the small plots that have been planted for a number of years. Local people also are interested in the reforesting of denued areas on their municipal watersheds.

The outstanding project, from the standpoint of cooperation, is on the Fruita watershed on the Grand Mesa Forest. This little town is paying half the expenses of planting its denuded watershed on natural Forest land. The Forest Service supervises the planting, furnishes the trees, and pays half the expenses.

Another cooperative project of considerable interest is that along the D. & R. G. W. Railroad right of way on Cumbres Pass. The railroad has great trouble in keeping its line open every winter on account of the deep snow and the severe wind which oftentimes piles up the snow into drifts 20 feet deep, as was the case this winter. A good bit of this country has been burned over and railroad officials feel that if a forest is planted along the right of way, it will materially reduce their snow trouble.

SERVICE NEWS DISTRICT TWO MARCH 11, 1927

The city of Cheyenne, Wyoming, is very much interested in having the Forest Service plant the denuded portion of their watershed on the Pole Mountain Division of the Medicine Bow. Five experimental plots will be established next spring to determine ways and means of reforesting this area.

The Michigan Forest with 4,719.6 acres is responsible for approximately 60 per cent of the acreage planted in 1926. There was a considerable number of excess trees on hand beyond the authorized production and all surplus money was used to plant these trees. This is the reason for the large acreage. As a result of the increase in the planting allotment, which was authorized by the recent Congress, starting with the F.Y. 1928, the Supervisor has been authorized to sow sufficient seed to furnish seedlings for planting

5,000 acres annually. A total of 16,515 acres are now satisfactorily stocked on this Forest as a result of planting. Since this planting was started in 1911, 306 acres have been burned, 9 acres have been failures, and 37 acres were given to the State with land exchanged. Close to 17,000 acres have been planted.

The District Planting Report, which was recently submitted to the Forester, shows that there are 12,409,700 seedlings and transplants on hand at the 4 Forest Service nurseries in D-2, and that 6,794,800 seedlings and transplants were distributed in 1926. All of these trees were planted on the National Forests except 100,000 which were sold to States for farm woodlot planting under Section 4 of the Clarke-McNary Law, and 197,000 which were given away free to residents of the Sixth Congressional, or Kinkaid, District of western Nebraska. Since the free distribution was authorized by Congress in 1912, 11,431 people have received 2,269,719 trees. The agricultural appropriation bill for this year authorizes the distribution, but it was eliminated from the fiscal year 1928 bill. Accordingly, the last distribution will be made this spring, after which the State Extension Service will handle the distribution of trees for farm planting in Nebraska.

A CHANCE FOR PR WORK

A gentleman from central Utah recently visited the office. He is the owner of 8,000 acres of land growing timber and forage and wants advice on how to best handle these two natural resources; how to best protect his timber from fire; how to cut it; how to handle his range lands in order to get the best returns out of them. A Forest officer will look over these lands and advise him as to the proper plans for handling these resources. - D. 4. Bulletin.

VANCE P. EDWARDES RESIGNS

Forest Products Laboratory lost a valued member of the staff July 1 when Vance P. Edwardes resigned to take a position as mill manager with the Northwestern Pulp and Paper Company at Astoria, Oregon. Mr. Edwardes goes to his new position with an excellent back-ground of laboratory and mill experience. He has been in charge of commercial contracts of the federal laboratory's pulp and paper section, including the Forest Products Laboratory's recent promotional work on white-water recovery and waste sulphite liquor disposal, since 1924. In 1917 to 1921 he was in charge of the Laboratory's sulphite investigations. from 1921 through 1924, Mr. Edwards was employed by the Consolidated Water Power and Paper Company at Appleton, Wis. While with this company he made a trip to Norway and Sweden to study Scandinavian sulphite methods.

With the Northwestern Pulp and Paper Company, Mr. Edwardes will be in charge of a 110-ton sulphite plant operating entirely on hemlock sawmill waste. This position will not be his first in the Northwest, as he was employed by the Crown-Willamette Company in Oregon City from 1911 to 1915.

BY THEIR FIRST NAMES:

The following was received in response to request for itemization of rangers' bedrolls under contract of hire:

"Further itemization and description of bedroll as per your letter of March 4.

Included in 3 blankets is 'Old Cootie Corral.' Cost to present owner, stolen from a Mexican on Curtis Canyon Fire in 1920.

Blanket No. 2 commonly known as 'Broom Straw' thin but serviceable.

Blanket No. 3 affectionately called 'Slick' except on cold nights, then known as x-x-o-x eel skin.

Comfort No. 1 is 'Old Pinkie'. In case it should be lost or damaged I don't want reimbursement in $ & ¢, but rather the hours I have spent trying to find heads or tails of the darn thing. Give me back those hours.

Comfort No. 2 is Old Soogan'. -- R.P."

D. 3. Bulletin.

Service Bulletin

U. S. FOREST SERVICE
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Woods Waste and Re-logging in the Douglas Fir Region

By A. H. Hodgson, D. 6.

It is common knowledge that the logging companies in the Douglas fir belt are leaving great quantities of wood material on the ground. Some say that this is unavoidable, while others claim that the amount is excessive. To learn the truth regarding the quantity and quality of this so-called "woods waste" is one of the objects of a survey, now being conducted by the Office of Products, District 6.

This survey has recently covered the logging operations of the Crown-Willamette Paper Company near Cathlamet, Washington, where a venture in re-logging the slash fields to save much of this material is being conducted. The work, which is being done with caterpillar tractors, light gasoline-driven donkey engines, and locomotive cranes, has been under way for two seasons. It is no longer an experiment but is being run on a large scale and at a profit.

Sample plots, for comparative purposes, were laid out on the area before and after re-logging. They were located on ground and within types as nearly identical as it was possible to judge, and the contents of the wood found on the ground in both cases were carefully measured and tallied. The resulting figures, which are presented below, in summarized form, are of interest in that they show what can be done at a profit, in the way of better utilization, under favorable conditions, by a pulp company.

All figures in this summary are worked out on the basis of one acre.

Summary of Waste Survey on Lands Before and After Re-logging.

Headings	Plot A Not Re-logged	Plot B Re-logged
Net Volume of Original Stand Before Logging		
Western hemlock	78,140 B.F.	72,612 B.F.
Silver fir	7,778 "	594 "
Total volume	85,918 "	73,206 "
Number of Trees in Original Stand Before Logging	86 trees	70 trees
Volume of Average Tree in Original Stand	987 B.F.	1,045 B.F.
Amount of Wood Found on the Ground as Slash:		
Class 1 Sawlogs*	7,080 B.F.	0 B.F.
Class 2 Sawlogs*	1,660 "	0 "
Class 3 Sawlogs*	1,480 "	200 "
Total Sawlogs	10,220 "	200 "
Pulpwood (too small for logs)	1,704 "	1,368 "
Total Slash	11,924 "	1,568 "
Wood left in Excessively high Stumps	830 "	702 "
Tot. Amt. of Wood Left on Ground	12,754 "	2,270 "
Tot. Amt. of Wood Left, Based on Net Volume of Original Stand	14 .8%	3.1%

*Working plan classification, not commercial log grades. Most of these logs are so small that they cannot profitabl be taken out by the heavy steam-driven machinery.

These figures show that more than 10,000 B. M. to the acre, or 11.7 per cent of the volume of the original forest is being saved.

At the present time the company is using similar light equipment to log small and medium-sized green timber, as an initial and final major logging operation. This new development seems to be giving satisfaction both as to cost and utilization, as well as production.

BIOLOGICAL SECTION FOR FOREST PRODUCTS LABORATORY

The Forester has approved the establishment of a new Section at the Forest Products Laboratory to work on biological problems, and to be known as the "Biological Section." Carlos G. Bates, recently Director of the Rocky Mountain Forest Experiment Station, was offered and has accepted the direction of this section, and reported to the Laboratory at the beginning of the current fiscal year.

The field of the new section will cover the activities of the Laboratory which lie nearest to the work of the Forest and Range Experiment Stations. For these stations it will serve also as a central laboratory, its work to lie particularly in the overlapping fields of the Laboratory and the Stations.

The field to be covered by the new Section will include, specifically, wood structure; relation of wood structure and wood properties in general to tree physiology and to growing conditions; forest tree morphology, physiology, and bio-chemistry; forest soils; light and atmospheric factors; genetics; and the development of special instruments for research. A similar field of study will be adopted for forest range plants.

The program of the Biological Section will be considered and decided upon annually as a part of that of the Forest Products Laboratory. Where silvicultural or range research problems are involved, the Chief of the Office concerned will be given an opportunity to consider them before final approval.

WHEN TO BEGIN

By Carl Ewing, Malheur.

The unusually late spring has set our alleged minds on the Malheur working on ways and means of selling to cattle men the idea of a later date for beginning their grazing season. If such a move is desirable from an economic standpoint there surely must be some avenue of approach whereby the Forest Service and the stockmen can arrive on common ground and without conflict.

Are we making full use of the means at hand for displaying the advantages of such a change? For example, should any range, with too early an opening date, be considered fully stocked so that beginners are barred from participation in its use?

Would it not be better to allow the pressure of unsatisfied demand to squeeze the cattle men themselves than for the Service to be too ready in erecting the barrier of closed ranges around the fortunate few who have established preferences and who enjoy a season which we feel cannot be justified?

Would it not be well to lay aside for the time any thought of damage to our ranges and dwell rather on the problem of best serving the needs of our communities and of the cattle industry? First we might try to limit the stocking of our ranges on an animal month basis to a load that can be carried even in an off year, so that fat cattle will be the rule. This can often be done by restricting temporary permits. Then the thought might easily be implanted that there exists the choice of running fewer cattle for fewer months.

The full value of this option can be established only in the presence of an insistent demand and in the absence of too much artificial protection around the established user.

In the absence of a demand for our ranges in excess of their capacity on the basis of existing seasons it would seem that there is no valid reason for shortening the season. Having once demonstrated the fact that the range has a certain quite definite [illegible]

[illegible]

[illegible]

capacity in animal months, and that this capacity can not be further increased by better management, it appears to me that our advantage would lie in putting the question entirely up to the stockmen for decision.

The point is, are we not sometimes overlooking the value of system in handling grazing problems and are we not entirely ignoring the trade or swap value of our authority to close a range to new owners when we allow this to be done before the correct season has been accepted?

FLOOD CONTROL SURVEY

Further study of the original outline prepared by the Forester's Committee on the Mississippi Flood Control survey has developed a detailed working plan and outline, prepared in the Office of Forest Experiment Stations, copies of which were distributed to the field on July 13.

Instead of five major basins - as outlined in the original plan and as described in the July 11 issue of the Bulletin - there will be six, the Red River-Ouachita basin being considered as a separate major basin and not as a part of the Lower Mississippi. The six major drainage areas of the Mississippi have been divided into 73 smaller areas, for each of which a report is to be prepared. The plan contemplates the building up of the reports on small areas into six reports upon the major divisions of the Mississippi drainage. The latter will then form the basis of the final report for the whole Mississippi.

The agencies responsible for the major reports are also being supplied with suitable base maps and information from the Weather Bureau, Geological Survey, and the Bureau of Soils for compilation of the basic reports. Tables are being compiled from planimetric measurements of the watersheds giving areas in square miles, and also the areas occupied by various forest types and by classified altitudes as shown by the contours.

FOREIGN RESEARCH MEN AT WORK IN THE LABORATORY

There has assembled at the Forest Products Laboratory within recent months the largest group of foreign research men ever gathered at the Laboratory at one time. Foresters and chemists from England, Australia, Sweden, Finland, and Mexico have been detailed to the Laboratory by their various governments and employers for periods ranging from 30 days to 2 years.

Mr. Wilhelm Rosen, a graduate of the Technological Institute of Stockholm, Sweden, and fellow of the Scandinavian-American Foundation, has just finished nine months of research on the distillation of softwoods in the Laboratory's chemical utilization section. Mr. Eric Ostlin, also a fellow of the Scandinavian-American Foundation, will conclude observations of Forest Products Laboratory methods within a few weeks. In his native country, Mr. Ostlin, who is an expert on forest mensuration, has been directing a general forest survey which the Swedish government started ten years ago.

Messrs. J. E. Cummins and H. S. Dadswell are on detail from the Australian Council for Scientific and Industrial Research to engage in general forest products research at the Laboratory for a period of two years.

Mr. W. G. Campbell, who is a fellow of the Commonwealth (British) Foundation, has concluded a two years' stay at the Laboratory. During his sojourn Mr. Campbell has been engaged in research on the fundamental chemistry of wood. He expects to accept an appointment with the Forest Products Research Laboratory of England on his return to that country

Sr. Hermenegildo Barrios, a member of the first class to graduate from Mexico's new forestry school, has spent a year in studying the methods of various Forest Products Laboratory sections

Mr. Uno W. Lehtinen of the Finnish State Forest Service has just concluded a month of study at the Forest Products Laboratory. Mr. Lehtinen, who is a graduate of the

Yale Forest School, has spent three years in this country and is to return to Finland soon. He is expected to take an important position in the forest products research laboratory which his government is to organize.

POINTS DEVELOPED AT INTERNATIONAL SOIL CONFERENCE

"Effect of Forest Fires upon the Composition and Productivity of the Soil," by F. J. Alway. From experiments and measurements made in Minnesota Dr. Alway pointed out that the losses due to fire were confined to the top three inches of litter or forest floor. No loss to the soil proper or loss of organic matter within the mineral soil was noted. In the discussion it was brought out that the loss of valuable soil by erosion often occurs after an area has been devastated by fire.

"The Mycorrhiza Fungi of Trees and Their Role in Nutrition," by E. Melin. Experiments in Sweden carried on by Dr. Melin show that mycorrhiza are very weak or entirely absent in neutral humus. These fungi are found to live in perfect symbiosis with trees. By experiments he has found the benefits to be mutual. The fungi particularly help the tree in the assimilation of nitrogen. However, it was found that in some cases in experiments carried on with pure cultures there was an indication that the fungi are not always beneficial but sometimes damage weaker plants. These fungi are necessary for good development of trees in soils having a high raw humus content. In the discussion it was brought out that mycorrhiza developed better in mixed hardwood-coniferous-forests of Sweden than in the pure coniferous type.

"The Use of Soil Surveys in Forest Classification," by Joseph Kittredge, Jr. It was pointed out that there is a definite correlation between forest regions and soil regions. This was graphically shown by a comparison of maps. Mr. Kittredge advocated the mapping of forest types at the same time that soil types are mapped. He predicted that as a more perfect correlation between soil types and forest types is worked out, a prediction of the producing power of land in terms of forest material may be determined.

"The Relation of Forest and Humus Cover," by H. Hesselman. Professor Hesselman pointed out the close connection between nitrification and rapid decomposition of vegetable matter and illustrated the close correlation between the rate of nitrification and the rate of growth of trees. Natural regeneration in Sweden was found to be most difficult with a large accumulation of raw humus. It is therefore necessary to change this condition by encouraging a mixed hardwood and coniferous stand in which raw humus does not accumulate in large quantities or by clear cutting and plowing or burning.

"The Mechanical Composition of Dune Sand and its Significance for the Productivity of These Soils for Forests," by P. Albert. Dr. Albert found great usefulness of mechanical soil analyses in judging the value of sand dunes for forest purposes. This value was found to vary directly with the proportion of fine sand particles under .2 mn. in diameter. Dr. Albert also displayed a penetrometer, which instrument is used for determining the mechanical resistance of the soil. A graphic record is traced on a cylinder when the instrument is pushed into the soil. Different forest covers are reflected in different characteristic graphs.

"Silviculture as a Factor in Maintaining the Fertility of the Forest Soil," by R. Zon. Dr. Zon summed up the progress of soil science in relation to the growing timber crops. He showed how foresters were dependent on soil science to guide and direct them in the handling of forest properties. In order to manage forests and get the desired results dependence must be placed not on trial and error, but on rather the knowledge of soil relationships, which are so fundamentally important. Dr. Zon made a plea for closer cooperation between the soil scientists and foresters. The discussion brought out the fact that courses in soil science are required of all forestry students in European schools.

LIGHTNING CONTROL

By L. R. Lessel, Gila.

The larger the problem the longer it will take to solve it; so it is with our largest unsolved fire problem - lightning. How many actual field experiments has the Forest Service made in an attempt to solve this hard problem? Suppose we just stop and think what science and invention have done in the last twenty-five years. Can anyone conscientiously say that we cannot find some economical means to control lightning? To me at least it seems that the control of lightning, through actual field experiments, should be one of the main objectives of research, along with the studies of fire weather and moisture content of soil, and the many other fire problems.

For several years, after observing the methods used in controlling lightning in telephone work, radios, on lookout towers, cabins, and dwellings I have wondered whether the same drain static principle cannot be applied in the Forest. It is barley possible that experiments along these lines have been tried, but if so, I have failed to hear of them. Not being an electrical engineer I admit that my suggested experiments may seem foolish, but I only offer them in the hope that others may give some thought to the solving of this problem. As mere suggestions to the cause - why not try:

1. ACTUAL FIELD EXPERIMENTS - using at least a township of valuable timber land, located in one of the many lightning hot spot zones. Place a #2 cooper wire conductor on trees spaced 10 chains apart. This spacing may be too far apart. However, in three to five years the occurence record of lightning fires in this experimental plot will bring this out. The estimated cost would be approximately $500.00 per section or $18,000.00 for the full township experiment. (A similar experiment could be made on a ridge say 12 miles long by 3 miles wide.)

2. COOPERATION: Interest the large electrical firms and secure their assistance in providing a lightning filter or some sort of apparatus that will drain lightning a given distance to discharge conductors.

Just a glance at our fire fighting bill caused by lightning fires alone makes one wonder if at the end of the next twenty-five years we will be traveling in the same old circular trail. Someone will no doubt say that lightning never strikes twice in the same place, but I maintain that lightning can be handled to a large extent by proper drainage, using ,of course ,the sort of conductors which further experiments will show to be best.

If without well tried out field experiments, we drop our heads and say that lightning cannot be controlled. we will not be doing our duty as foresters.

UPTON NATIONAL FOREST ABOLISHED

The Executive Order of April 10, 1925, creating the Upton National Forest of 6,154 acres on the area of the Camp Upton, New York, was rescinded by Executive Order dated June 29, 1927. The action was taken since the War Department had classified Camp Upton as surplus property and has obtained authority from Congress to sell the area. In view of the immense real estate value involved, the Forest Service has not opposed the War Department in the action taken. - C. G. S.

On January 1, 1926, the Bureau of Public Roads estimated 3,001,825 miles of roads in the United States of which 521,915 miles were surfaced. The greatest road mileages were in Texas and Oklahoma and the smallest in Delaware and Rhode Island. Texas and New York had the greatest mileage of State Highways and Delaware and Rhode Island the smallest. Texas and Oklahoma had the greatest mileage of local roads and Delaware and Rhode Island the smallest. Indiana substantially led all other states in the mileage of surfaced roads. Rhode Island was at the bottom. Approximately 54% of the State Highways were surfaced but only about 14% of the local roads. T. W. N.

THE PROBLEM IN ARKANSAS

______, Arkansas.
March 26, 1926.

"I have been receiving lituture from you for a long time your last envelope is stamped prevent forest fires which very much conserns me and lots of my neighbors, while it seems to earetate more of them.

"I have 40 acres of rocky hill side land 10 of it cleared and in cultivation but all fenced I have just come in after burning leaves in side and out to Protect my fence which cost me 300 dollars of hard earned money, 4 years of my earnings, if I dont burn the leaves and destroy my timber the other fellow will do it for me, they burn arount there fence and then go through the woods throwing matches in all directions, we dare not leave home from the 1st of March to April first in less we burn inside and out and destroy what little timber we have left

"all my trees have holes in them at the top of the ground from fire and they soon fall over not even good for fence Posts this is a free range country and they clame burning the leaves makes the wild grass grow better but it dont it only destroys the leaves and vetation that god has giving us to be left on the ground as a fertilizer for the land, I have seen places in other states whare they had a fire warden and the leaf mold 3 feet deep and the land as black and rich as cream the same kind of land as ours, if it were not for this range burning we could a ford to insure our homes and buildings, but the conditions here makes insurance be come to high, every one must burn his place whether they have one acre or a hundred cleared and fenced to Protect there Self.

"Now I could appeal to my representiver who goes from this district to washington and ask him to use his good offices in geting a law to abolish the range burning, but my home Paper would publish my letter and an editorial of what an ungrateful black harted scoundral I was, yes he would even tell them I was worse then Judas the trator in the scripture who sold crist for his sexton masters gold there would be a mass meeting and every one would be invited to see me stretch himp, now cant you People use your influence with the Powers to be or the representevers at washington to abolish the burning of the woods every spring by giving us a fire warden there is only 2 states now that has no fire warden and Arkansas is one of them we have some fine timber here but it wont be so long, I would of had 30 acres of good timber if it was not for the fires, half the People here is against setting fires But they are like me they can do nothing about it only lose there home if they make kick,

Yours Respectfully
______""

SANTA FE RAILROAD TO COOPERATE

By John D. Jones, D. 3.

During a conference held at Flagstaff in February by Supervisor Miller, the office of Operation and Public Relations with reference to the extent of fire hazard near Flagstaff, it was determined that a large number of fires occurred from lighted cigars or cigarettes thrown out of car windows, or from observation coaches of Santa Fe trains.

A letter was written the Santa Fe Railroad and their General Counsel, Mr. S. T. Blodsoe, advises that they carry a display in their time folders, that they will continue the notice this year, and propose to carry it throughout the entire year instead of just the summer season as heretofore. It is believed that this cooperation on the part of the railroad in directing the danger from fire to the attention of passengers will help to solve the right-of-way fires.

The Southern Pacific last year carried a placard on each observation coach warning passengers against throwing lighted matches, cigars, or cigarettes from the train. This cooperation of the two main railroad systems in the Southwest should greatly lessen this source of fire danger.

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U. S. FOREST SERVICE
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THE COURT'S DECREE

By Harry Irion, Washington.

Following up its decision of last May the United States District Court for the District of Arizona issued a decree June 24 perpetually restraining state and county officials of Arizona from in any way interfering with Forest officers and other agents of the Federal Government in carrying out the regulations and orders of the Secretary of Agriculture for reducing the number of deer upon the Kaibab National Forest and the Grand Canyon Game Preserve, even though the killing or trapping of the deer and the transporting of them dead or alive to points within or outside the state may be in violation of the Arizona game laws. The one disappointing feature of the decree is that it appears to prevent the Secretary of Agriculture from using the services of voluntary cooperators in securing a reduction in the number of deer unless the terms happen to conform with the special requirements of the State's game laws. If present plans are followed the Government will appeal the case to the Supreme Court on the ground that the District Court erred in placing this restriction upon one of the most effective means open to the Secretary in remedying the situation.

This case dates from the fall of 1925 and arose because of interference or threatened interference by state and county officers with those engaged in reducing the deer herd under orders from the Secretary of Agriculture and Forester. Representatives of the State claimed that the local game laws must prevail over such orders. The United States filed a bill in equity asking the District Court to enjoin county and state authorities from carrying out their announced purpose or in any manner interfering with the Government plan through the enforcement of state laws or otherwise. Judge Ross, in delivering the opinion of the court, said that regardless of whether the deer was the property of the State or of the United States "there can be no doubt of the right of the Government of the United States to do whatever is necessary for it to do upon its own property to protect it from the depredations complained of, including the killing or removal of whatever number of deer as may be necessary, without any regard to the game laws of the State of Arizona." Later in the opinion, however, it is said that this right does not authorize the licensing of hunters to transport deer killed on the reserve to places outside in violation of local laws.

At the time the Grand Canyon National Game Preserve was created in 1906 the deer herd numbered approximately 3,000 head but in 1925 it had increased to more than 30,000 head. After extended investigations it was found that the deer were overstocking the range and consuming a large part of the forage best adapted for their winter feed and were also injuring and damaging National Forest lands by overbrowsing and killing young tree growth, shrubs, bushes, and other forage plants. Prior to the issuance of the decree by the District Court it was the belief of those most familiar with the situation that regulated hunting on the area afforded the most feasible means of reducing the herd and preventing an economic loss.

FLOOD CONTROL PROMOTES SOIL CONSERVATION

The Department of Agriculture was represented at the Mississippi Flood Conference held at Tulsa, Oklahoma, July 14 and 15, by S. H. McCrory, Chief of the Division of engineering of the Bureau of Public Roads, H. H. Bennett of the Soil Survey Division of the Bureau of Soils, and Associate Forester E. A. Sherman of the Forest Service, each of whom addressed the conference.

Although attention was given to the entire problem of controlling floods of the Mississippi, the conference was particularly interested also in the control of the Arkansas River and its tributaries. Arkansas and Oklahoma are deeply concerned in seeing that the Federal Government does not limit its flood control study and activities to the channel of the Mississippi alone, but that it includes such important tributaries as the Arkansas, particularly its lower regions, where adjoining lands are flooded by the back-water from the Mississippi.

In addition to the Oklahoma Congressional delegation the Congress was attended by Congressmen Driver and Ragon of Arkansas, Manlove of Missouri, Sproul of Kansas, and Sears of Nebraska.

The conference was united in agreeing that levees were the first line of defense and necessary in any case, but thought consideration should also be given to other flood control aids, such as reforestation, water storage, terracing, contour plowing, and the like. Particular stress was laid upon the insidious danger and tremendous losses resulting from erosion and consequent soil depletion. The recent disaster was viewed as probably a blessing in disguise, since it is likely to result in calling the attention of the nation to the necessity of preventing erosion in order to preserve the fertility of the vast areas of rich agricultural soils in the Mississippi Valley. Out of the demand for flood control there is certain to come a realization of the necessity for soil conservation.

AMERICAN FOREST WEEK

By L. C. Everard, Washington.

The 1927 report of the American Forest Week Committee indicates that the Week was a greater success this year than ever before. In giving the high-lights of the observance in each State the report mentions more than thirty national organizations that took an active and enthusiastic part in the work, and this number is undoubtedly only a fraction of the total.

For the 1927 Week the Forest Service supplied approximately 2,050,000 pieces of printed matter of all kinds, for distribution through State chairmen and other agencies. From the Washington office special Sunday edition material was sent to 110 papers. In California the newspapers broke all records for the quantity of forestry material carried during the week. A total of 1,945 items, equivalent to 17,465 column inches, appeared in the papers in D-5. This was a gain of 154 per cent over the 1926 score. In Louisiana a special forest week edition was issued by the New Orleans Times-Picayune, a large section of which was devoted to forestry. Of this edition 139,000 copies were distributed.

One of the most hopeful developments this year was the way in which local celebrations turned to tree planting. The reports received, although very fragmentary, record the planting of about half a million young trees, and this figure is undoubtedly far below the number actually planted.

Essay contests were a favorite method of enlisting the interest of school children. Eight States reported the use of this method on a fairly wide scale. In Mississippi the winning essay was printed in attractive form by the State Forester and distributed to boys' and girls' clubs and schools. In Humboldt County, Calif., the contest was so arranged as to include the children in every grade from primary through high school.

In general the methods used for bringing the purposes of the week before the public were the same as last year, but methods of a distinctive character were brought into use in a number of localities. In Baltimore the street cars were placarded with forestry posters. The Missouri Pacific and the Wabash railroads, in cooperation with the international headquarters of Hoo-Hoo at St. Louis, placed a forest week card on every table in their dining cars; in Massachusetts a special drive was made to induce automobile owners to install ash receivers in their cars; in Michigan demonstration plantings were carried on by the forestry department of the State college; in New Hampshire special attention was given to the Four-H Clubs and the boys and girls of the clubs planted 154,000 trees.

In Canada a national advertising campaign was authorized by the Minister of the Interior and was placed in the hands of an advertising agency. Advertisements were contracted for in about 300 publications, daily and weekly papers, and farm journals. A playlet on fire prevention was distributed to every English-speaking school, and arrangements were made for the display of a special poster in every post office, bank, and railway station in Canada.

RAINS REMOVE TWENTY TIMES AS MUCH PLANT FOOD AS CROPS

Old mother earth's annual bathing bill costs the farmers of the United States more than $200,000,000 every year. Rain water scouring the countryside, rushing down hillsides, gouging out gullies, and sweeping over gentle slopes of cultivated fields, carries away to the ocean many millions of tons of soil. With this rich topsoil goes 126,000,000,000 pounds of plant-food material - lost to the farmers of the country forever - twenty times the amount permanently removed by cropping.

But this is only a fraction of the damage wrought, says H. H. Bennett, soil scientist of the United States Department of Agriculture. The real scourge of erosion is that it takes not only the elements of plant food, but soil - plant-food material and all - leaving in many instances infertile material very difficult to till. Erosion is constantly shaving off the topsoil of cultivated fields - the richest soil of the land. In one instance it was found that 7 inches of topsoil were removed by sheet erosion in 24 years from a gently sloping field of Putnam silt loam growing corn under ordinary cultivation in Missouri. Soil scientists agree that most of the worn-out lands of the world are in their present condition because much of the surface has been washed away, and not because they have been worn out by cropping.

A single county in the Piedmont region was found by actual survey to contain 90,000 acres of land formerly productive, but now permanently ruined by erosion. Another county in the Atlantic coastal plain has 60,000 acres of former rich land gullied beyond repair. Possibly not less than 10,000,000 acres of land in the United States formerly cultivated has been permanently destroyed by rainwash. Much of this could have been saved by timely terracing.

There is need at once for a nation-wide awakening to the evils of erosion, says Mr. Bennett. There is immediate need also for fundamental soil data relating to erosion; demonstrations of the value of properly built terraces; and much national education about this menacing agency of land devastation. - Dept. of Agri. Clip Sheet.

THE TREES WON

In submitting a request for an increase in grazing allotment, the Advisory Board of the Mt. Adams Cattle Association, refering to the Columbia National Forest, makes the following statement.

"SECOND: A comparison of quality of the cattle range and adjacent sheep ranges will show the cattle range to include a greater percentage of jungle and brush covered lands than other allotments. Some of this area has within the knowledge of some association members CHANGED FROM OPEN GRAZING LAND TO TRACTS COVERED BY A GROWTH OF YOUNG TIMBER SO DENSE THAT THE LAND HAS NO VALUE FOR GRAZING PURPOSES." -L.F.K.

NEW ZEALAND WOODS TO BE TESTED FOR PAPER MAKING QUALITIES

Alex R. Entrican, engineer in forest products of the New Zealand State Forest Service, has arrived at the Forest Products Laboratory with wo carloads of New Zealand grown woods, both native and introduced, which the Laboratory will test for paper-making qualities. All of the well-known pulping processes will be used in the tests, as well as the semi-chemical process which has recently been developed at the Laboratory. Three hundred logs and a considerable quantity of slab wood make up the shipment. There are six species in all. Monterey pine, indigenous to the Monterey Peninsula in California, rimu (DACRYDIUM cupressinum), the dominant New Zealand softwood, and tawa (BEILSCHMIEDA TAWA), a New Zealand hardwood, are the species about which information is most desired. The three other species, European larch, Austrian pine, and Corsican pine, will also be tested.

Mr. Entrican states that the pulping tests are being carried out because New Zealand foresters are obliged to find uses for the thinnings from extensive forest plantations which are just reaching thinning age in his country.

The existence of large planted forests in New Zealand, which has extensive natural forests, is due to problems of forestry peculiar to the country. The native woods are of such slow growth that to meet immediate future timber requirements the New Zealand Forest Service has adopted a policy of planting rapid-growing species from abroad in preference to attempting to alter the existing stands by long-time management plans. Although the natural forest will in time be thus developed as the need arises, three hundred thousand acres of public forests, together with about 200,000 acres of private plantings, is the area, properly forested, that is expected to produce an adequate timber supply for the islands for some time to come. Of the public area one-third has already been planted, principally with Monterey pine, western yellow pine, Corsican pine, Austrian pine, European larch, northern white pine, and various Australian eucalypts. The program contemplated the planting of the remainder by 1935. In addition to Monterey pine there are a number of other American woods which are represented in the New Zealand planting, including western white pine, Douglas fir, western yellow pine, Port Orford cedar, and lodgepole. Owing to the fact that the pulping qualities of these woods have already been determined by the Forest Products Laboratory they are not included in the present tests.

According to Mr. Entrican the New Zealand plantations have well justified the faith put in the faster-growing species, the mean annual increment per acre running from 250 to 900 cubic feet per acre per year. This growth rate is several times that common to forests in the cooler parts of the North Temperate Zone. Based on even the lower limit of growth, quoted above, Mr. Entrican estimates that it would be possible to operate permanently a pulp mill of 200 tons daily capacity on about 50,000 acres of forest.

WISCONSIN URGES NATIONAL FOREST RESEARCH PROGRAM

By Joint Resolution of June 28, the Legislative Assembly of Wisconsin memorialized Congress to provide more adequate support for forest research, and urged the passage of the bill, introduced at the last session of Congress, which would provide definite authorized appropriations for the U. S. Department of Agriculture to carry out a comprehensive forest research program in cooperation with the States.

POKER JIM RANGE MANAGEMENT CONFERENCE

By T. Lommasson, D. 1.

The first range management field demonstration and conference in Montana was held at the Poker Jim Ranger Station on the Custer Forest on July 7-8-9. Among the twenty-five specialists attending were representatives of the Bureau of Animal Industry, Bureau of Plant Industry, Montana Wool Growers Association, State Extension Service, including the county agent Leader and county agents from eight eastern Montana counties, Indian Service, the Chicago, Milwaukee and St. Paul Railway, State Livestock extension experts, and members of the State Economics extension branch.

Discussion and demonstration of the progress being made at the Poker Jim Experimental Pasture on distribution of stock and utilization of range was a feature of the program as was the application of the grazing management plan and the spring pasture system. The results of the breeding experiment and fluctuation of calf crop were sources of great interest.

Ways and means of obtaining dissemination of improved range management knowledge throughout the State was discussed and the Extension Service men went on record as favoring an active program. The economic relation of farm and ranch lands in relation to the grazing resources of eastern Montana were also discussed and visits made to representative ranches. Mr. J. P. Sarvis of the Mandan North Dakota Experiment Station discussed his grazing work on the Northern Great Plains, joining the work done in eastern Montana with that done on the contiguous range country in the Dakotas.

J. R. Quesenberry, Superintendent of the U.S.Livestock Experiment Station at Miles City, Montana, was an actively interested member of the party.

Members of the State Extension Service, Montana Wool Growers Association, and the Chicago, Milwaukee and St. Paul Railway have requested special demonstration of the methods of obtaining range survey data and other features of the work. This will be provided on the Jefferson Forest this season in connection with the grazing survey party on that Forest. Further meetings of the type held this year have been planned in the mountainous section of the District during subsequent seasons.

Much of the ground work for an active program of range management extension work was laid at the conference.

THE STATES GET THEIRS

By J. G. Peters, Washington.

The annual allotment battle is over, and the States have been notified of the amounts of Clarke-McNary funds they will receive for forest fire cooperation during the ensuing year.

The battle was more spirited this year than at any time heretofore. The cooperative fund was larger -- an increase of $290,000 over last year's appropriation made the total for the present year a round million.

Claims from the various sections of the country were presented. The section which has taken the lead in educating Congress made a very convincing plea for special consideration. The section which is primarily protecting young growth for future generations put in its special claim. Then there was a claim from the section which had been urging for a decade and now sees adopted the policy of recognition of State effort. All claims were carefully considered and a harmonizing scheme was finally adopted.

The general formula for determining the allotments was that old-timer which has been effective for these 17 years of cooperative fire protection, namely, the greatest good to the greatest number in the long run, with the goal of continuity of timber production constantly in view. With this as a basis each State this year gets 8½ per cent of the estimated cost to protect State and private forest lands, with the exception of only two States not yet able to qualify for their full share. Twenty-eight of the 33 cooperating States draw extra allotments, depending upon the extent of their own efforts, that for Michigan being the largest.

The allotments are as follows:

State	Regular allotments --8½% of cost of protection	Extra allotments based on State and private effort	Total
Me.	$ 38,250	$ 5,390	$ 43,640
N. H.	11,416	1,870	13,286
Vt.	6,698	330	7,028
Mass.	14,510	3,410	17,920
R. I.	1,224	110	1,334
Conn.	5,100	1,430	6,530
N. Y.	33,022	8,250	41,272
N. J.	7,004	3,850	10,854
Penn.	33,448	4,180	37,628
Md.	5,610	880	6,490
Ohio	2,363	550	2,913
Va.	30,991	..	30,991
W. Va.	16,362	1,870	18,232
N. C.	41,438	..	41,438
Ky.	14,404*	..	14,404
Tenn.	21,250	..	21,250
Ga.	38,250	880	39,130
Ala.	38,250	110	38,360
Miss.	32,555	1,100	33,655
La.	29,087	3,520	32,607
Texas	30,532	330	30,862
Okla.	13,600	110	13,710
Mo.	11,000*	..	11,000
Mich.	42,594	15,510	58,104
Wis.	27,276	4,620	31,896
Minn.	55,743	8,690	64,433
S. Dak.	128	330	375**
Mont.	16,618	2,090	18,708
Ida. (N)	25,500	6,600	32,100
" (S)	2,958	550	3,508
Wash.	36,125	11,330	47,455
Ore.	34,892	9,350	44,242
Calif.	34,425	12,540	46,965
N. Mex.	1,606	220	1,826
		Total	$864,146

Administration and inspection, including Section 1 investigations......	73,089
Forest tax studies	50,000
Contingent for new States	12,765
Total appropriation	$1,000,000

*Reduced to 50-50 basis. **Reduced to Federal maximum of 25% of cost of protection.

Service Bulletin

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BUILDING FIRE TRAILS WITH MACHINERY

By Richard E. McArdle,
Pacific Northwest For. Exp. Sta.

When it comes to strong backs versus machinery the machinery sometimes comes out on top. The chances seem good for machinery to supplement strong backs in building fire trails in the open yellow pine forests. The Office of Fire Control in District 6 recently tested a number of different implements for building fire trail, including the rubottom plow, Beatty plow, Oliver hillside plow, ordinary road drag, a modified drag known as a "ditcher", a road grader, disk harrow, single and double disk plows, and a "pan-buster".

One conclusion from this test is that ordinary agricultural implements should be modified to fit forest conditions. The share on ordinary plows invariably catches on roots and rocks and this trouble is not entirely eliminated by using a rolling colter. The frame of the ordinary disk plow is so near the ground that brush catches and clogs under the frame. The draw-bar of any implement must be high enough above the ground to prevent catching and holding of brush in front of the tool. This is a defect common to all the drags, to the Beatty plow, and the disk plow as they now are constructed. Another conclusion from this test is that the small caterpillar tractor often is more flexible and efficient than a team of horses.

The implements which did the best work were the disk plow and a home-made modification of the pan-buster. From this test it seems that good results could be obtained with a disk plow mounted on a frame entirely different from the ordinary disk plow frame. This frame would be at least two feet above the ground in front and have the axles of the front wheels fastened rigidly, and a single disk, twenty-four inches in diameter mounted just in front of the rear wheel. This rig would make a trail about eight inches deep, six inches wide, and throw the dirt well broken up to one side for a distance of about two feet. Pulled by a two-ton tractor this plow can make a good trail at the rate of one mile in thirty minutes, and go up a thirty per cent grade.

The pan-buster is an implement designed for use on farms in breaking up hardpan. It consists of a rather heavy steel frame supported like a cart body on two wide wheels four feet in diameter. A steel bar drops down from the rear, and on the bottom of this bar is a long point projecting toward the front as in a rubottom plow. The modification which was made on the spot with the assistance of a local blacksmith was to remove the long point and substitute a double moldboard, one board on each side of the bar. In completed form this resembles a shovel plow or middle-breaker, except that the moldboards are much larger and longer and the point, or share, instead of curving down and outward is brought backward and in, like the prow of a ship. The implement made a rounded scooped-out trail about eight inches deep and a foot wide, and threw the dirt well broken up a foot on either side of the trench, making a good trail about three feet wide. With a caterpillar a mile of trail can be built in thirty minutes, and on good ground three miles of trail can be made in an hour. Brush three feet high is uprooted and thrown to one side and the implement clogs very little. Of all the tools tested, this one gave the best results. By substituting disk plows for the moldboards the new tool could be used in stiff clay soil and probably would work in sandy soil even better than the moldboards.

IMPRESSIONS OF THE WESTERN STATES EXTENSION CONFERENCE

By W. R. Chapline, Washington

I feel that I was very fortunate to attend the Western States Extension Conference at Reno, Nevada, July 11 to 14, take part in the proceedings, and discuss the Range Management problems in the committee meetings.

The Secretary of Agriculture gave a very inspiring address emphasizing particularly the need for sound agricultural programs based upon thoroughly analyzed facts. He emphasized that it was the extension organization's work to accept the job of teaching the farmer just what is sound production practices, the need for producing a quality product which will always have a satisfactory demand and mass marketing. Mr. W. A. Lloyd, in charge of Cooperative Extension in the West emphasized the principle that progress and improvement are based on facts, that these facts must be collected, analyzed or focused, and then presented to those who need to know and use them. Other addresses referred more particularly to specific phases of the extension program.

The Western States Extension organization has developed very thorough programs for many important phases of its work. A regional meeting is held each year to consider results attained, and to develop programs for one or more additional phases of Western Agriculture. The value of these regional periodic conferences in reviewing programs, past progress, and accomplishment was shown very definitely at the Reno conference. The broadening of the point of view of the men and women concerned with the programs was an additional feature.

The Western Extension organization is assuming a most important role of coordinating the efforts of organizations concerned with agriculture in the West, and of pointing effort toward the accumulation and presentation of facts.

Thee is a far cry from poultry and clothing - the two features given most consideration this year - to Forestry and Range Management, but the attack on the problems, the means of presentation and the thorough consideration of all phases point to ways and means of organizing and accomplishing the essential features of any program.

In the poultry program, for example, it was emphasized that to encourage a farmer to go into the poultry business, even as a side line, (1) he must be poultry-minded, (2) it must offer a chance for profit, and (3) he must be able to give attention to the poultry at critical times. These features as applied to livestock have a direct bearing on encouraging or approving applications for National Forest grazing of new beginners with small herds. Unless the livestock owner can care for his stock throughout the entire season and do it on a profitable basis, or is in a position to place his cattle or sheep in a well organized, properly functioning community herd, it is better to disapprove his application for his own and the community's good.

Among other things, the conference went on record as approving control of the public domain and a more intelligent application of the Homestead laws. Conservative grazing and adequate feed for range livestock throughout the year, but especially during the critical spring period, was urged. The Forest Service was commended for its range research and for its cooperation in furthering the extension program.

MILITARY TRAINING CAMPS

By John B. Cuno, Forest Products Laboratory

I wonder if in the Forest Service the reserve officers and the men with World War service who could be reserve officers and the Forest Service as an organization aren't passing up something big in not attending these summer military training camps. Here we are, a virile outdoor organization with some 2100 men, mostly of military age, scattered from West to East and North to South, contributing to the National Defense Act of 1920 little or nothing compared to what we could contribute. I have no figures on the number of Forest Service men attending these camps, but I have a hunch that only a few are attending them or are actively participating in Reserve Corps work. If I am wrong in this, come back at me.

I have just returned from two weeks at Camp Custer, Michigan, with my engineer regiment. I saw there more clearly than ever befor the need for carrying out this Defense Act which defines our plans for defense in case of a major emergency. I realized, too, more fully than before, that the Act contemplates not only training in infantry drill, but that it contemplates training in the mobilization of men and industry, procurement of material, supply, finance, engineering, and the many other complicated functions brought about through war. These are untouched fields in which a reserve officer can lend a hand. I saw for the first time how large a part the young men, the high school and college chaps, are playing in this work of defense and citizenship. These young men, just coming into their own as they are, learn at camp something of self-defense, discipline, and physical fitness. It was plain they need our help if their program is to be successful. I saw how rusty I was getting and how completely out of touch I was with the plans that must be put in play in an emergency. I began to realize that the War Department needs me, and needs a great many other Forest Service men hidden away on its 150 million acre expanse. I am talking to the men who know the unwisdom of laying down our arms. I am talking to the men who believe it fair to distribute the military burden on our whole citizenry just as the Constitution allows, and not shift it to a standing army with imperialistic power. The National Defense Act of 1920 provides for this distribution and for reasonable, rational self defense without imperialism.

You may say you cannot get away for two weeks during the summer? Of course you can get away! If you have your job functioning properly you can get away and you and the Forest Service will be the better for it when you return. Two weeks -- approximately eleven actual working days away from your regular job.

The Department of Agriculture, like other Government Departments, specifically grants military leave with pay in addition to your annual and sick leave. This is no kindheartedness on their part. It is simply the Department's recognition of the need for some degree of self-defense. Neither we as individuals nor the Forest Service as an organization can afford to fall into the status of nonsupport. That is on a par with pacifism itself. The Forest Service must keep itself on record as a liberal contributor of men for these short periods of training. Big business has awakened to the need. Many large corporations are granting leave of absence with full pay to small numbers of their employees. We in the Forest Service already have the statute. All we need is the willingness to go.

The camps are over for this season, but next summer they will present the opportunity again. Reserve Corps work in my estimation is work that takes priority over all military activity such as membership in the American Legion, Veterans of Foreign Wars, and other organizations with a patriotic flavor. Such organizations are all right in themselves, but a wholly different form of organized effort is needed in providing a broad program for self-defense in the future. Aside from the service rendered, the two weeks at summer training camps, under canvas, amongst good companions, following an entirely different line of thought from your everyday work are weeks hard to beat. "Let's go," as the slogan says, "to military training camps."

SPRUCE BUDWORM INFESTATION

By F. R. Johnson, D. 2.

An infestation of the spruce budworm is causing considerable damage to timber on the North Fork of the Shoshone River in the Shoshone Forest. The infestation was first noticed in July 1922 on Big Creek. The size of the infestation has increased annually and last fall it was estimated that the timber on about 50 sections had been injured or destroyed. It is estimated that 6,000,000 to 8,000,000 feet of timber have been killed. On Sweetwater, Clearwater, and Big Creek all reproduction and practically all trees of merchantable size are dead. The Forest has been opened up to such an extent that heavy stands of grass have grown up where, three years ago, there were dense stands of timber.

On June Creek, the tie and sawlog trees have not been entirely killed and, on this drainage, a sale was made last March, under administrative use, to L. C. Freeman for approximately 2,500,000 feet of timber. This was sold at the rate of $1 per thousand feet B.M. The operator is required to burn the brush and this, the entomologists believe will assist in reducing the infestation.

On July 7, Doctors Burke and Edmondston, of the Bureau of Entomology, Mr. Charles Burnett, Assistant Chief Lumber Inspector of the C.B.& Q. R.R., Supervisor Langworthy and Ranger Spencer made an inspection of the infested area. Mr. Langworthy reports conditions as follows:

"We found unusual activity in the budworm infestation. Myriads of the caterpillars were defoliating the trees. Their webs festooned the branches and hung from tree to tree. In walking through the timber a person became covered with the caterpillars. They are very nearly grown and in about two weeks the millers will be flying and most of this year's damage will be over. We found the budworms in normal numbers as far up ahe river as Pahaska.

"While Douglas fir is the principal tree attacked, the budworms were found this year even on juniper and, where in mixture with Douglas fir, they sometimes attack limber pine. Alpine fir and Engelmann spruce seem to attract the budworms equally with Douglas fir.

"The entomologists thought that conditions in this Forest warranted drastic action and were of the opinion that dusting from an airplane was the only possible way to combat the budworm.

"They thought that the Forest Service should take the matter up with some commercial flying company, preferably one which had experience in treating boll weevil or similar work, and try and interest them in taking a contract to do the job.

"A landing field can be prepared at Freeman's mill opposite June Creek and the June Creek - Blackwater infestation dusted from this base.

"Treating similar infestations from an airplane is being undertaken this year in Nova Scotia and we may be able to learn something from that source."

In addition to the enormous destruction of timber which is taking place, the infestation is also giving considerable concern because it is adjacent to the beautiful eastern entrance highway to the Yellowstone Park. This is probably one of the reasons for the interest of the C.B.& Q. R.R. officials in the matter. There was a small infestation in the Yellowstone Park and a large power sprayer, which cost $7,500, was used to control the insect on trees adjacent to buildings and hotels. This infestation in the Park appears to be subsiding.

VETERAN RANGERS RETIRE FROM FOREST SERVICE

Word has been received from Washington that the retirement age for Forest Rangers has been established at 62 years. The only men affected in this District are the following, both of whom were retired on June 30:

Paderson Y. (Bud) Lewis, Stanislaus. Was born on May 13, 1858. He was appointed in May, 1901, in the Department of the Interior (Field Service) and was transferred to the Forest Service as a Ranger on the Stanislaus February 1, 1905, where he has served continuously to date of retirement.

Edward S. Mainwaring, Sierra. Was born on July 21, 1858. He was appointed on July 18, 1899, in the Department of the Interior and was transferred to the Forest Service as a ranger on February 1, 1905. Mainwaring served for several years as Supervisor of the Trinity and San Luis Obispo National Forests and has since January 1, 1914, been under appointment as a Ranger on the Sierra. - D. 5 New Letter.

RECEIPTS

By H. I. Loving, Washington

Receipts from the National Forests for the fiscal year ended June 30, 1927, were $5,166,609.39 according to reports received from the Districts as of that date.

This is $10,948.37 in excess of the amount received in the previous fiscal year and exceeds any previous year except 1923 and 1924 when the receipts were $5,335,818.13 and $5,251,903.11, respectively.

Receipts by Districts for the fiscal year 1927 and the comparison for 1926 were as follows:

District	Receipts 1927	In excess of 1926	Less than 1926
1	$ 571,312.46		$200,870.29
2	732,387.31		21,386.90
3	379,336.89	176,764.19	
4	580,624.26		84,658.87
5	1,162,581.38		113,664.13
6	1,309,173.16	195,017.72	
7	263,468.07	5,368.36	
8	167,725.86	54,378.29	
	$5,166,609.39	$431,528.56	$420,580.19

Total increases $431,528.56

Total decreases 420,580.19

Net increase $ 10,948.37

Receipts by classes for 1927 and comparison with 1926 were:

Class	Receipts 1927	Increase over 1926	Less than 1926
Timber Sales	$3,206,832.82		93,056.46
Timber Settlement	21,863.93		11,759.00
Timber Trespass	5,673.02		8,924.56
Turpentine Sales	18,872.73	297.16	
Grazing:			
Cattle and Horses	874,613.82	111,025.23	
Sheep and Goats	647,046.54	1,536.80	
Trespass	9,295.75		3,194.62
Special Uses	277,611.53	17,791.72	
Occupancy Trespass	399.07	227.66	
Water Power	98,749.34	4,030.76	
Fire Trespass	5,600.84		7,043.36
Property Trespass	50.00	17.04	
Total	$5,166,609.39	$134,926.37	$123,978.00

Total increases $134,926.37

Total decreases 123,978.00

Net increase $ 10,948.37

The decrease in District 1 was due principally to a falling off in timber sales, the 1927 receipts from that source being $402,672.16 and for 1926 $599,563.40. Presumably poor market conditions in that District resulted in a reduction of the cut.

There was a material increase in timber sale receipts in District 8, the figures for 1927 and 1926 being respectively $149,068.34 and $92,953.06. This increase was probably brought about by deposits made in connection with the large pulpwood sales on the Tongass Forest.

In District 3, the grazing receipts for 1927 were $195,873.06 and for 1926 were $42,878.22. For the latter year, the very low figure was due principally to the fact that grazing fees in the drought stricken region of Arizona, New Mexico, and Utah were remitted for that year.

Although the grazing fees for 1927 were materially in excess of the 1926 figure, they were $391,333.00 less than the average, $1,933,289.00 for the 10-year period 1917 to 1926 inclusive. For timber, on the contrary, although the 1927 figure is less than that for 1926, the former is $992,932.00 in excess of the average for the past 10 years, $2,260,310.00. In Special Use receipts there was also an increase for 1927 over 1926. Receipts from this source have shown a steady increase, the figure for 1917 being $107,535.85 and for 1927, $277,611.53. This is due to the increased use of the forests principally because of their greater accessibility.

IDEAL WORKING CONDITIONS

By Lenthall Wyman, Southern For. Exp. Sta.

What constitutes ideal working conditions for a pine tree? It is generally agreed that a man is most efficient in an office where the temperature is kept at 68° to 70°. We know that most plants are dormant, or nearly so, in the winter, but what is known of the exact response of tree activities to varying temperature?

The Southern Forest Experiment Station is trying to get the answer to this question in connection with a study of gum flow from pine trees as affected by atmospheric and soil conditions which is being conducted in Florida.

An automatic recording instrument called, for convenience, a gum gage has been used in this work. This gage records continuously the flow of gum from a large slash pine tree. The record is traced on a chart which runs by clock work, revealing the very interesting story of gum yield.

It is shown, for instance, that on cold days the yield is small; that when the weather is hot the yield increases. So far as we have gone the limit has not been reached, apparently, for every increase in temperature has been accompanied by a corresponding increase in gum flow. Every night the yield slows down and every morning it is stimulated, at least for several days following chipping.

The gage records a diminishing yield for each successive day after the chipping day, provided the weather conditions remain constant, and eventually the yield ceases as the resin ducts heal up.

The ideal working conditions for a tree have not been determined but these slash pine trees do love the sun. The warmer the better seems to be the slogan of the pine tree

SMOKER'S CODE

(For the Dry Season)

DANGEROUS TO SMOKE
WHILE TRAVELING
On Forest, Brush or Grassland
SMOKE ONLY

1. While Stopping in a Safe Place Clear of All Inflammable Material, or
2. During or Right After a Heavy Rain, or
3. Inside a Vehicle on Two-Way Highways, or
4. Above Timber Line, and
5. After Smoking, Put Out All Lighted Material. - D. 6.

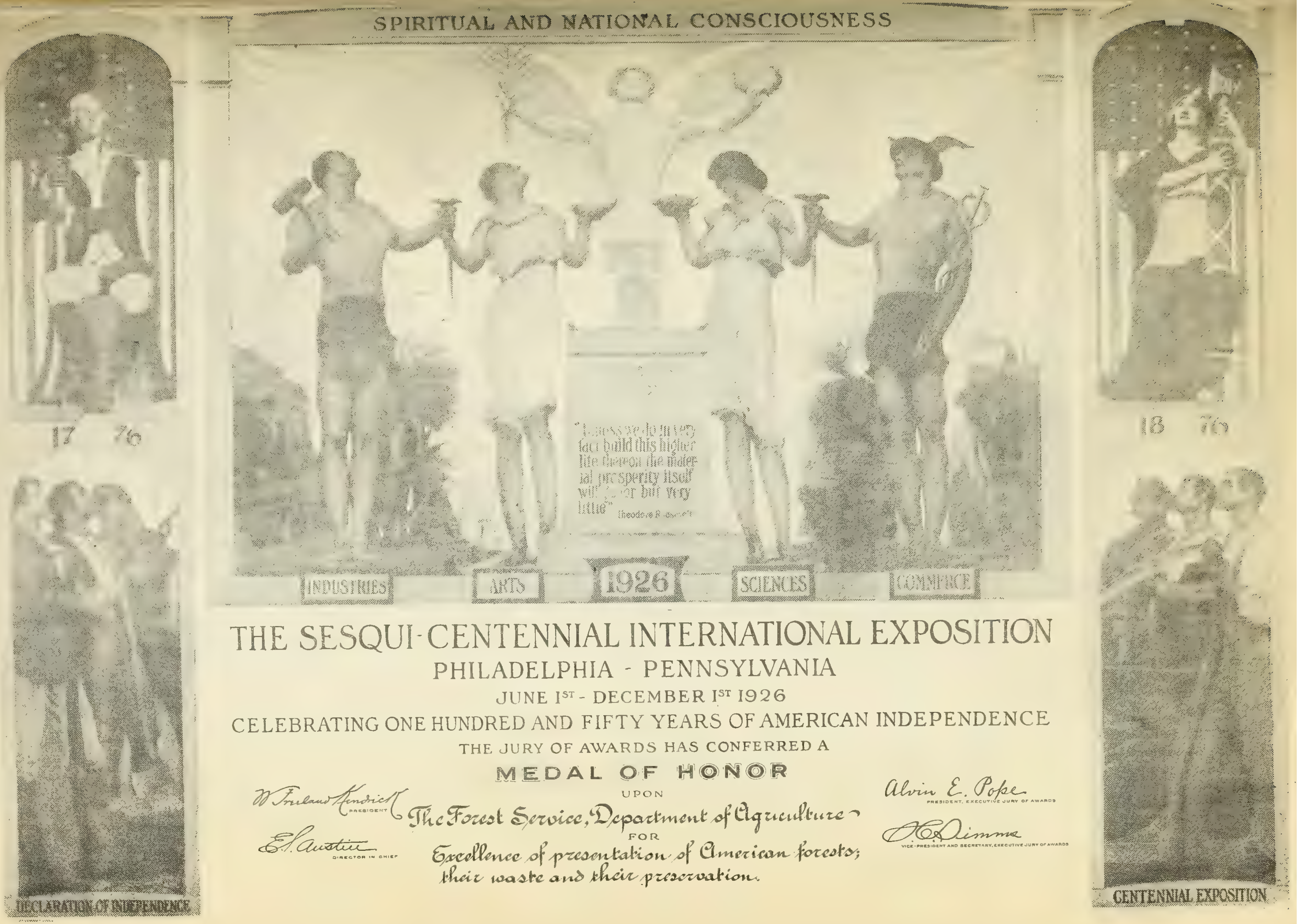
COOPERATION ALL AROUND

The following appeal by an enterprising publication in Knoxville, Tennessee, appears with a road sketch map on the face of a blotter distributed by it:

"Your Town's Greatest Attraction

"There are now 22,000,000 automobiles in the United States, one-half in a belt of States of which Ohio is the center from which cars come as far south as Knoxville in a day. Forty million people are touring this year, and as ONE THIRD of all people who tour go camping, thousands of Tourists will utltimately come into your town on their way to the CHEROKEE NATIONAL FOREST because it is an absolutely free, magnificent, five hundred square mile Camping and Touring Ground.

"Will you and your town contribute cash or advertise in our Journal to help us carry on our perpetual publicity campaign to broadcast to the touring world the wonders of the CHEROKEE NATIONAL FOREST, if so, drop us a line, and we will get in touch with you."


SPIRITUAL AND NATIONAL CONSCIOUSNESS
17 76
DECLARATION OF INDEPENDENCE
18 76
CENTENNIAL EXPOSITION
"Unless we do in very fact build this higher life thereon the material prosperity itself will avail but very little" Theodore Roosevelt
INDUSTRIES
ARTS
1926
SCIENCES
COMMERCE

THE SESQUI-CENTENNIAL INTERNATIONAL EXPOSITION
PHILADELPHIA - PENNSYLVANIA
JUNE 1ST - DECEMBER 1ST 1926
CELEBRATING ONE HUNDRED AND FIFTY YEARS OF AMERICAN INDEPENDENCE
THE JURY OF AWARDS HAS CONFERRED A

MEDAL OF HONOR

UPON
The Forest Service, Department of Agriculture
FOR
Excellence of presentation of American forests; their waste and their preservation.

W. Freeland Kendrick
PRESIDENT

E. L. Austin
DIRECTOR IN CHIEF

Alvin E. Pope
PRESIDENT, EXECUTIVE JURY OF AWARDS

H. C. Dimma
VICE-PRESIDENT AND SECRETARY, EXECUTIVE JURY OF AWARDS

Service Bulletin

U. S. FOREST SERVICE
(Contents Confidential)

VOL. XI. No. 33 WASHINGTON, D. C. AUGUST 15, 1927.

Colonel W. B. Greeley,
The Forester.
July 26, 1927

Dear Colonel Greeley:

It gives me pleasure to convey to you a diploma and medal, conferred upon your organization by the Jury of Awards of the Sesquicentennial International Exposition, for excellence of presentation of American forests; their waste and their preservation, in your exhibit at the Exposition in Philadelphia, June to November, 1926.

Sincerely,

W M Jardine
Secretary.

August 1, 1927.

It is with considerable satisfaction that the Secretary's letter conveying the award of the Sesquicentennial diploma and medal to the Forest Service is here published. As indicated on the diploma, the award was for excellence in presentation of an exhibit portraying 150 years of our American forests, the waste incidental thereto, and the remedies offered by approved forest practices. In the prominent place assigned to it, the display was viewed by many thousands of people during a period of six months, and was of considerable educational value. To all those who had a hand in its preparation and presentation, the Service renews its expression of thanks.

E. A. SHERMAN
Associate Forester.

"CHARGES"

By L. F. Kneipp

A man may be so generally "no account" that his neighbors will neither believe him nor have anything to do with him. His tendencies may be so slanderous that no district attorney or sheriff would believe him under oath, but would run him out of their office if he attempted to file charges against one of his neighbors. Yet if that man can get ahold of a couple of sheets of cheap paper and a stub of a lead pencil, and has the wit to fabricate charges against a government official, he can set the whole machinery of government in motion, in an expensive and time consuming effort to determine the truth or untruth of his charges.

Again, a man may be a contender for some form of public privilege or benefit, to which he is not entitled, or at least not as well entitled as some other applicant. The record may be against him; the weakness of his case may be obvious. But if he is clever enough to file charges against the government officer with whom rests the right of official decision, he may so confuse the issue that the original question of relative right becomes subordinated and lost sight of: and decision unconsciously or otherwise is affected by the charges of official prejudice, despotism, favoritism, etc.

But after all, is this state of affairs entirely wrong. History is replete with instances of abuse of offical power, of cases where unchecked authority has lead to injustice. The right of appeal, the certainty that appeals will be recognized and considered, is a precious safeguard of personal liberties, and as such is as important to a Forest Officer as it is to any other citizen. The immediate question therefore is not one of ways and means by which unwarranted charges may be immediately suppressed and penalized, but rather one of the best waysand means for effectively handling and equitably disposing of them when they are made.

Because of its decentralized form of organization, the nature of its duties and the enormously valuable resources entrusted to its care, the Forest Service, or its individual members, make shining targets for charges of all kinds. It is inevitable that many such charges should be made. Action upon them has varied from one extreme to the other and there is among the rank and file a wide difference of opinion as to which kind of action is fair and just.

The first impulse is to question the personal integrity of the person making the charges, or the sincerity of his motives in making them. In many instances major emphasis is laid by the reporting officer upon the fact that the complainant is a man without honor in his own neighborhood and is unworthy of belief. In other cases the existence of a selfish motive is stressed and proof is submitted to show that the charge is a deliberate attempt to cloud the major issue of some pending case.

But even though these statements may be absolute facts they are not sufficient answers to the charges themselves. The only real answer, the only effective demonstration of the complete untruth of the charges is a careful painstaking analysis of them and the assemblage of facts and evidence, preferably direct but at least circumstantial, which convincingly will prove that the charges are untrue. The fact that a man is a notorious prevaricator is not in itself a complete refutation of his charges for sometimes, wittingly or unwittingly, he may tell the truth. The fact that a man is a party in interest to a pending appeal is not in itself an answer. But complete and convincing evidence that the charges are untrue not only vindicates the man against whom they are made, and the organization of which he is a member, but is the most effective deterrent to the filing of other similar charges.

When charges are made, the invariable practice apparently should be to sift them to the bottom. If by chance they are true, the Service should know it so that effective steps may be taken to protect its good name and to see that justice is done. If the charges are untrue, then both the man against whom they are directed, and the Service as an organization, are entitled to full and complete vindication, and the only way this can be secured is through an irrefutable demonstration of facts and circumstances which completely disprove the charges.

THIS RECREATION BUSINESS

Would you like to know how many people, other than Forest Officers and lumbermen, take an interest in the National Forests each year? Well here's the dope.

We are not throwing up our hat about this, mind you, rather taking it very seriously and as a Use problem that all of us should be considering. Perhaps a careful consideration of it will give some of us an idea in re forest fires and how to prevent them.

There were, it seems, more than 17,000,000 National Forest visitors last year; 11,000,000 of these were transients. Since the ladies have now taken to smoking this may mean 11,000,000 cigarettes (business of shuddering) and 11,000,000 potential forest fires. (If cigarettes do not cause forest fires Research will doubtless correct us) There were 2,400,000 visitors classed as picknickers. These were probably local people who could be reached for educational purposes by local means.

Another class known as campers numbered 2,000,000. The hotels and resorts contributed guests to the number of 1,320,000, and those who have special use permits, together with their guests numbered 265,000.

What States lead the list? California first, with nearly 7,000,000 and Oregon, Colorado and Washington the runners-up, with respectively 2,300,000, 1,500,000, and 1,093,000.

If you take a sufficient number of Eastern States to make up a territory equal to California, Oregon and Washington, say for a guess New Hampshire, New Jersey, Pennsylvania, Virginia, and Florida, we get only 904,000 visitors, which indicates either that there are more people on the Western Coast or more acres of National Forests. We leave it to you.

This is all contained in a report issued by the Branch of Lands, consisting entirely of figures, the only exception being that of State names, and classes of visitors. It seemed to us you would rather have it in English than in arithmetic, but for those who prefer "math" we say, send to Lands for a copy. There is a lot to think about in it.
H. R. K.

PLANTING IN COLORADO

Reports have just been received from the Pike Forest showing that a total of 1,155 acres was planted on the Mt. Hermon project last spring at an average cost of $9.91 per acre. A total of 733,200 western yellow pine and Douglas fir seedlings and transplants was used. The cost of planting each individual tree amounted to 1½¢. These figures are of particular interest at this time in view of the effort which the Forestry Committee of the Denver Chamber of Commerce is making to secure additional funds to plant the 54,000 acres of denuded land on the headwaters of the South Platte River. This is in the watershed from which Denver secures its water supply and is included on the Leadville and Pike Forests.

At this time, also, prominent citizens of Cheyenne, Wyoming, are planning to secure increased funds for planting the Middle Fork of Crow Creek, which is in the Pole Mountain Division of the Medicine Bow Forest and includes the watershed of the City of Cheyenne.

P. R.

Arthur Brisbane, world renowned writer for the Hearst papers whose editorials reach many thousands of readers not only in his own but in other papers, says:

"Men that exploit forests, stripping earth of its trees and soil of its fertility, are reported to be changing their tactics. They have found that instead of chopping, slashing, then moving on, it pays to adopt the European method, treat the forest as a crop, felling big trees protecting and preserving little ones.

"Lumbermen now cut and use TWENTY-FIVE BILLION CUBIC FEET, which means twelve times as many lineal feet, equivalent to a board one inch thick, twelve inches wide, three hundred billion feet long. The new lumbering method is more important to future generations than any other news of this century."

In addition to acquiring a grasp on the whole situation he has been educated to say "CROP" in speaking of the forest which would indicate that our educational methods are effective.

BRAINS.

"Adequate scientific research, followed up by the proper technical applications by inventors, may enable our country to feed three hundred or four hundred millions in comfort, if we keep up our supply of brains. The shortage in the supply of brains is probably the place where the whole thing will break down. Our whole future civilization will require more and better brains to run its complexities.

ANOTHER CENTENNIAL

By E. N. Munns, Washington

According to our best information, forest research is 100 years old, as on April 7, 1826, Marcus Bull read a paper before the American Philosophical Society of Philadelphia on "Experiments to Determine the Comparative Quantities of Heat Evolved in the Combustion of the Principal Varieties of Wood and Coal used in the United States, for Fuel." Prof. Silliman's Journal which published the article in May stated as a preface to the article, "This memoir is the result of a long course of experiments, conducted with great care and skill. It is replete with interesting information, and is to be regarded as one of the most important contributions of science to the arts and to domestic economy which has been made in this country."

Perhaps the most interesting thing about this early work was the fact that the unit to which all the other heat values was referred was shellbark hickory whose scientific name is given as JUGLANS SQUAMOSA. A long list of woods, 46 in all, were tested, as were six charcoals and 14 coals, 5 of which were imported to America. Among the woods tested were apple, cherry, black walnut, witch-hazel, dogwood, maple, various oaks, white ash and elm. "Soft yellow pine," (the old name for shortleaf) white pine and red cedar were also included. In this work the author had carefully determined the specific gravity of the wood, weight of dry wood in one cord, amount of charcoal the wood would produce per cord, its specific gravity and heating value. A check of these values indicates that the results are essentially the same as the later ones.

How such a study affected the people of the time can be judged when in the year of March, 1926, we find that Philadelphia, with a population of about 125,000, used: 140,150 cords wood at $4.50, 25,545 tons of Penna. coal at $7,00, 320,000 bushels of pine charcoal at 10 cents, 95,000 bushels of Richmond coal at 30 cents, 30,465 bushels of Liverpool coal at 33 cents.

The probabilities are that the pine charcoal was made from shortleaf, virginia, scrub and perhaps loblolly pines.

One wonders how the residents of Philadelphia managed to keep warm with the equivalent of about a ton of coal per inhabitant with the long winter season and the poorly heated houses of 100 years ago. Perhaps they didn't.

NEW STATION DEVELOPMENTS

E. H. Clapp, in company with E. F. McCarthy, Director-elect of the forest experiment station for the Ohio-Mississippi Valley region, spent two weeks touring the

Central States looking for a desirable headquarters location. After considering some 10 or 15 places, recommendation was made to the Forester and the Secretary with the result that on July 2 the Secretary decided to establish the headquarters at Columbus, Ohio, in cooperation with the Ohio State University and the Ohio Agricultural Experiment Station. The station staff was notified of the decision and work was started under the direction of Eyre, who took care of the field parties temporarily at Portsmouth, Ohio.

Three men and a clerk have so far been assigned to the Station. These include L. F. Kellogg and J. H. Hanley, Junior Foresters, and Bernard S. Meyer, Associate Forest Ecologist. Meyer will report in September following the completion of his teaching contract at Ohio State. Mrs. Louise L. Davis is being transferred from the Natural Bridge National Forest to the new station.

MISSISSIPPI FLOOD CONTROL

Research agencies in the entire Mississippi Valley region will be called upon, for considerable data on flood control. Compiling of maps and statistical information is going on here in the Washington Office and elsewhere. In connection with this study the Forester has requested the publication of a paper on the position of the Forest Service in regard to erosion and floods, the preparation of the paper being assigned to Ward Shepard. Zon's old paper in the Final Report of the National Waterways Commission on "Forests and Water in the Light of Scientific Investigation," is being reprinted in a large edition for general distribution.

PERSONNEL NEWS

New appointments recently made to the regional forest experiment stations of the U. S. Forest Service include:

A. F. Hough and O. M. Wood to the Allegheny Forest Experiment Station.

Arnold L. McKinney to the Appalachian Forest Experiment Station, Ashville, N. C.

John Hanley and L. F. Kellogg to the new Ohio-Mississippi Valley Experiment Station.

E. L. M ______ (?) and J. L. Averill to the Lake States Experiment Station, St. Paul, Minn.

V. L. Harper to the Southern Experiment Station at New Orleans.

OWNERSHIP OF INVENTIONS MADE BY GOVERNMENT EMPLOYEES

H. Irion

The United States District Court for the District of Maryland recently delivered an opinion in the case of United States vs. Houghton which, unless reversed by a higher court, will have an important bearing in determining the ownership of inventions made by the Government's scientific and technical personnel while executing research assignments in the course of their employment. Houghton, a chemist, had been employed for about two years by the Public Health Service in analyzing dust samples when he was assigned to the task of developing a fumigant in combination with a warning gas, for use in exterminating objectionable insects and rodents found in ships, buildings, and other enclosures. With the cooperation of other government officials he developed such a fumigant and applied for private patent on the invention. The Government thereupon filed a bill in equity asking that Houghton be restrained from assigning the invention or the patents thereon, that the United States be adjudged entitled to the entire right, title and interest therein, and that he be ordered to transfer and convey the same to the United States. In view of the facts the court said the decision in Standard Parts Co. vs. Peck (246 U. S. 52) controls and held that the invention and patent application covering it are the property of the United States, indicating that a decree drafted accordingly would be signed.

In arguing the case Houghton claimed that in the Standard Parts case Peck was expressly employed to develop a particular process, while originally he, Houghton, was employed generally as a research chemist and not until later was he assigned to work out a particular problem, citing two recent Federal cases in which it was held that the assignment of a general employee to do a specific work will not create a title of his invention in his employer in the absence of an agreement to that effect. In answering this argument the District Court said:

> "But the broad principle is now laid down by the Supreme Court too clearly to be misunderstood, that when an employee merely does what he is hired to do his successes as well as failures belong to his employer. Nor can it be said that one who willingly carries out orders of his employer is not engaged upon that which he is employed to do. An employee who undertakes upon the direction of his employer to solve a specific problem within the scope of his general employment, is as truly employed and paid for the particular project as if it had been described at the outset in the contract of employment. That which Houghton discovered belongs to the United States."

Houghton, because of an alleged understanding he had with certain government officials raised the question as to whether it was the intention of the parties when the project was first undertaken to regard the Government as the owner of any invention that he might make. The Court said that the facts failed to disclose, the intention of the parties at the time the work was started, but observed that " * * * it is certain that none of the officials had the authority to give away the property of the United States * * * the case as to the patent must be decided upon the facts as they existed at the time that the discovery was made."

As a further defense Houghton claimed that he developed the glycerine and water process (a feature of the invention) while on leave. The Court, however, refused to accept this as a sufficient defense for the following reasons:

> "The discovery was within the purview of the investigation with which he was employed. He formally reported experiments with glycerine and water which led to the invention. It is stipulated in the case that experiments in the process were made during the months of September and October, and that during portions of these months he was on duty; so that from the record it would appear that his experiments were performed, even if his final results were not achieved while he was officially employed. In any event, having agreed in advance that he would investigate for the benefit of the United States a suggestion of his superior officers, he cannot evade his obligation by developing it while on leave."

The ownership of inventions developed by employees engaged in research work has been a mooted question for several years, and the decision in the Houghton case will do much to resolve any doubts that may have heretofore existed regarding the matter. It is not yet known whether the defendant will appeal the case.

PARAGRAPH FROM
"FACTS NOT FEARS THE MOST RELIABLE GUIDE TO THE FUTURE OF THE FORESTS"

By Wilson Compton - Sec'y. Mgr. N. L. M. A.

Let it not be forgotten that until thirty years ago public opinion, if it concerned itself at all with the problem of the forests, considered that virtually all forests were properly doomed to make way for tilled fields. There was thus an almost irresistible momentum for making our woods industries purely extractive. The lumber mill was everywhere considered a transient instrument of preparation for a higher land economy. Effort to change by fiat, customs and conditions imbedded in the inertia and conservatism of landowners and in the irresponsibility and indifference of the public, bristle with practical difficulties. A nation and an industry that have been used for a hundred years to looking upon forests as they looked upon wild game cannot be changed overnight to the slow, tedious and cautious methods of reproductive lumbering. Even where forestry has become demonstrably profitable it has taken much time to overcome the inertia of generations that knew it was not profitable. I have no desire to picture our forest industries as immaculate in their understanding, model in their consideration of public aspects, or characterized by superintelligence. In fact it is my personal belief that as a whole forestry is nearer today to being generally supportable economically than most lumbermen think. There is room for much improvement in many if not most woods operations and there will be more as higher prices for forest products stimulate a finer utilization in woods and mills.

SOME SAY THEY DID

By J. V. Horton, Columbia.

Much has been said pro and con relative to the question of whether the Indians used to burn the forests or not. Of course, whether they did or not does not affect our policy today but from an historical standpoint the following are interesting.

Henry Spelman who came to Virginia as a boy and was captured by the Indians in 1614 has left the following record:

---"ther maner of Huntinge is thiss they meett sum 2 or 300 together and hauinge ther bowes and arrows and euery one with a fier sticke in ther hand they besett a great thickett round about which dunn euery one sett fier on the ranke grass which ye Deare Seinge fleeth from ye fier and the menn cumminge in by litell and litle incloseth ther game in a narrow roome so as with ther Bowes and arrowes they kell them at ther pleasuer"--

Again in the report of Lieut. S. Mowry to Captain George B. McClellan in 1854, we find the following:

"On leaving the low prairie lands back of Vancouver, and gradually penetrating the range of mountains, the atmosphere, clear below, became smoky. This appearance continued throughout the country in the vicinity of the mountains. It is believed to be caused chiefly by the immense fires which, from time to time, are kindled in the forests by the Indians, and which lay waste large sections of the country. For scores of miles we marched through a country entirely devastated by this element."

From the above it appears that some Indians did fire the forests but, it is very probable that all Indians did not follow this practice, the governing factor being, beyond a doubt, whether fire made hunting surer or easier.

MODIFICATION OF FOREST FIRE LAWS OF FRANCE

The years of 1921 and 1923 were rather disastrous for France in the matter of forest fires. In 1921, 3,500 fires burned over about 125,000 acres and caused a loss of 14,000,000 francs. In 1923, about 126,000 acres were burned at a loss of 16,000,000 francs. These two bad years led to the enactment of the law of March 26, 1924, entitled "Law Concerning Various Measures to be Taken Against Forest Fires," designed to emphasize, enlarge, and strengthen the fire prevention measures already in force. The main provisions of the law provide for:

Extending during certain periods of the year the provisions of a former law which prohibited all persons, with the exception of the owner or his legal representative, from lighting fires in a forest or within a distance of 200 meters from a forest, to the owners themselves and to their legal representatives.

During certain periods of the year which should not exceed five months in all, the Prefects may make regulations for the burning of brush within a distance of 400 meters of a forest and prohibit all persons from smoking in a forest, or from carrying certain kinds of matches or automatic fire lighters.

3. When there exists within 20 meters of a railway a wood or forest, the railway company may now, after having notified the interested owner, remove the brush from a longitudinal strip 20 meters in width, measured from the outer edge of the right-of-way. Unless special arrangements had been made with the owners, the brush removed applies only to dead wood.

4. When conditions seem to warrant it, Prefects may delay the opening of the hunting season.

5. In the case of fire in forests not coming under forestry control, grazing can be forbidden in all or part of the burned-over ground for any period up to ten years by order of the Prefect.

6. Plantations made in forests destroyed by fire are exempt from all taxation during a period equal to the age of the forest burned, provided it was not over 20 years old. C. R. T.

WHAT CAUSED THE P. R. MAN TO BLOW UP

A flaring newspaper advertisement (local) advises people to "Explore Colorado's Newest Playground - San Isabel National Forest." Among the many attractions listed we find "Barren Deserts," "Rolling Sand Dunes," "The entire West concentrated in one great NATIONAL PARK."

The distances on the Santa Barbara National Forest are so great that it was necessary to hold three separate guard training meetings.

ELEPHANT FIRE BRIGADE USES TRUNKS ON BLAZE

Travancore, India. A remarkable tale of how a herd of wild elephants put out a fallen burning tree and saved a terrible blaze in the forest is told here on the southwest coast of India. It appears that during a gale a big tree was uprooted and fell right across the main trunk road in Travancore state, near Theoran custom house.

Some laborers, who had been sent to clear the road, set the tree on fire so as to lessen their work, and as dusk was falling they returned back to the safety of the custom house instead of facing the dangers of the forest at night. The fire was spreading slowly to the adjoining woods when the leader of a herd of wild elephants smelled the fire and came to the road in order to satisfy his natural curiosity.

The moment he saw the fire spreading to the forest he called his followers by loud trumpeting and within a few moments a well disciplined band of dusky four-footed firemen were busily employed with their trunks as hose, turning on 40 streams of water on the blazing tree and burning woods. A running stream near by was sufficient reservoir for them to draw their supply of water, and very soon, to the amazement of the wonder-struck laborers, who had been attracted by the trumpeting to the place where they should have been working, the fire was put out, and perhaps as a matter of revenge, the elephants dragged the fallen tree into the middle of the road and left it there. - Indian News Service.

GOVERNMENT EMPLOYEE ARRESTED FOR DRIVING WITHOUT LICENSE

An inspector from the office of the Chief of Field Division of the Land Office was recently arrested near Garden City, Kansas, for driving a Government owned car without a license. He was required to give bond and a hearing was set for his case.

Service Bulletin

U. S. FOREST SERVICE
(Contents Confidential)

VOL. XI. No. 34 WASHINGTON, D. C. AUGUST 22, 1927.

WHERE THE LIGHTHOUSE MARKS THE TRAIL.

T. T. Munger.
Pacific Northwest Forest Experiment Station

A month in Alaska has introduced me to a new mode of forest life and a new breed of foresters. Here the foresters are amphibious, they must be navigators to survive, for they have both to sail the seas and swim in the brush. They eat, sleep, and of course write reports, on board their boats; they rarely sleep on the ground, or toast their backs about a camp fire; the packhorse and flivver are no allies of theirs. One stops for the night "to anchor" , not "to make camp". Lighthouses and buoys mark the trails.

They have to be a hardy lot perpetually wet either by rain, salt spray or sweat. Timbered hills can be steeper than I have ever seen them anywhere else, the ground more hummocky; it is covered by a 10-inch carpet of green moss that deceptively hides age-old crumbling logs, limestone caverns, and traps amongst the tree roots. The prevailing undergrowth is Devils Club (F. HORRIDA), but salmonberry and spruce thickets are just as painful to go through. The trees have a way of growing on down logs and knolls so that DBH is often below the level of the roots.

Forest research is making a beginning on the Tongass National Forest and now planning a program of expansion. It is a marvelous field. A primeval forest if there ever was one, stretched along ten thousand miles of shore line - excepting perhaps a dozen miles altogether of beach frontage where logging has been done. It is a region of abrupt contrasts where in an altitudinal range of 2,500 feet they type changes from luxuriant growth of 200 foot spruce 4 feet in diameter to the prostrate hemlock of timber line. Worthless muskegs are encountered in most unexpected places, as are also patches of even-aged spruce in the midst of uneven-aged climax forest of hemlock.

It will be a fascinating problem for the research foresters of District 8 to ferret out the habits and needs of these trees, to invent the methods of silviculture that will promote the best second crop in the new big pulp operations, and to determine through growth studies the potential production of this vast and varied archipelago of forests.

Here the foresters can safely be fire unconscious for some of the 5 to 15 feet of rain that falls yearly comes each of the summer months to keep the forests green. Whatever the winter may be with its occasional 25 to 35 inches per month of precipitation and gales that keep foresters as well as fisher folk storm-bound in harbors for days at a time I can testify to many heavenly, smoke-free, heatless, frostless days aboard the "Tahn" on the Tongass in July 1927.

A FENCE OR AN AMBULANCE

'Twas a dangerous cliff, as they freely confessed, though to walk near its crest was so pleasant; but over its terrible edge there had slipped a duke, and full many a peasant; so the people said something would have to be done, but their projects did not at all tally, some said, "Put a fence around the edge of the cliff", some, "An ambulance down in the valley." But the cry for the ambulance carried the day, for it spread to the neighboring city; a fence may be useful or not, it is true, but each heart became brimful of pity for those who slipped over that dangerous cliff; and the dwellers in highway and alley gave pounds or gave pence, not to put up a fence, but an ambulance down in the valley. "For the cliff is all right if you're careful," they said, "And folks even slip and are dropping, it isn't the slipping that hurts them so much as the shock down below--when they're stopping;" so day after day, as these mishaps occurred, quick forth would these rescuers sally, to pick up the victims who fell off the cliff with their ambulance down in the valley. Then an old sage remarked: "It's a marvel to me that people give far more attention to repairing results than to stopping the cause, when they'd much better aim at prevention. Let us stop at its source all this mischief," cried he, "Come, neighbors and friends, let us rally; if the cliff we will fence we might almost dispense with the ambulance down in the valley." Oh, he's a fanatic," the others rejoiced; "Dispense with the ambulance? Never! He'd dispense with all charities, too, if he could; No! No! We'll support them forever! Aren't we picking up folks as fast as they fall? And shall this man dictate to us? Shall he? Why should people of sense stop to put up a fence while their ambulance works in the valley? But a sensible few, who are practical, too, will not bear with such nonsense much longer; they believe that prevention is better than cure, and their party will soon be the stronger. Encourage them, then, with your purse, voice and pen and (while other philanthropists dally) they will scorn all pretense and put a stout fence on the cliff that hangs over the valley. Better guide well the young than reclaim them when old, for the voice of true wisdom is calling: "To rescue the fallen is good but 'tis best to prevent other people from falling." Better close up the source of temptation and crime than deliver from dungeon and galley; better put a strong fence 'round the top of the cliff than an ambulance down in the valley.

Joseph Mollins,
in "The Northern" for August.

OUR LIBRARY

Helen E. Stockbridge.

During the past fiscal year the library added 619 new books and pamphlets to its collection, and discarded or turned in to the main library of the Department 487 volumes for which the Service had no further need. The total number of books now on file is 24567.

The library takes regularly and files 90 periodicals, mostly lumber trade and forestry journals. These, and as many more which are sent over from the main library for circulation, are reviewed by the librarian, and the important articles on forestry, lumbering, etc., are indexed by authors and subjects for the card catalogue. Last year there were 2800 articles, books and pamphlets indexed in the library.

In the last twelve months 11492 books and periodicals were drawn from the shelves, and there were 1647 visits by members of the Service and others who wished to consult the library in person. The greatest number of loans in any one month was 1203, in March 1927. There were more visitors in a single month in Jan. 1927, when the records show that 183 people used the library personally.

The western district offices continue to purchase the books for, and keep the records of the libraries in their territories. However, the Washington office is frequently called upon by these offices to place orders for books which they are unable to get locally. The Washington library keeps the charge records for the Forest Products Laboratory, the eastern national forest and experiment station libraries, and the Forest Taxation Inquiry at New Haven, Conn. The total number of books in these libraries on July 1, 1927, was 3865.

A NEW OUTBURST AGAINST FOREST SERVICE "BUREAUCRACY."

The August 10 issue of the Outlook carries the first of a series of articles by ex-Supervisor Arthur M. Baum, under the general title, "Why Our Forests Are Burning Up." Briefly, the reasons are found in "bureaucracy", bad organization and use of funds, failure to properly size up and make known the needs, poor selection of men for important positions, and dissipated effort through too much attention to educational work and the promotion of private, municipal, and State forestry. The opening article bears the title, "The Forest Service Has Lost Its Vision of Its Real Job."

To the Forest Ranger the article gives unstinted praise, as "the pivot of conservation" and a public servant of whom the country may well be proud. But "he is overwhelmed by the legions of bureaucracy." In its boxhead above the article the Outlook says that the series "constitutes a long-stifled protest of the field force, living and working amid the trees of the National Forests, against the bureaucratic office force." In its editorial columns the magazine asks: "Must we wait for another such calamity (i.e. another year like 1926) in order to demand of Congress that it reorganize the Forest Service and reform its own forest policy?"

Among the specific points alleged in criticism of the "higher-ups" are: failure to grasp the magnitude of the need for better provision beforehand for fire control, withholding the facts from Congress and the public for fear of unfavorable reactions, complacency, diversion of funds from the field to high-salaried and unnecessarily elaborated overhead, wasteful expenditures when emergencies develop, and placing incompetents in key positions in the fire organization.

"Mr. Baum", says the Outlook, "served in the Forest Service for 14 years as guard, ranger, and supervisor in one of the worst fire districts in the country. He resigned to engage in other work, but . . . feels that he can render no better service to the cause than by acquainting the public with the facts."

Ex-Supervisor Baum after two seasons as a Guard received appointment as a Ranger on the Beartooth in 1914, and became Deputy Supervisor of the Beartooth four years later. In 1919 he was appointed Supervisor of the Lolo. In 1922 he was transferred to the supervisorship of the Kootenai and in December of last year submitted his resignation. The resignation was not voluntary. "I wish to make it clear", he states in his article, "that I have no concern with individuals, but that I accuse the Forest Service of very grave errors of commission and omission for which in a subsequent article I shall endeavor to point out definite and practical remedies."

Until the series has progressed further, comment on the criticisms made is premature. Coming as they do from a man familiar with the inside workings of our organization, and proclaimed as an expression of the viewpoint of the field man who according to the article "knows the facts, but he is muzzled," they will perhaps enable us at least to ask ourselves some searching questions as to what we really believe regarding "bureaucracy" in the Forest Service.

FEWER FAWNS ON KAIBAB

The fawn drop this year in the Kaibab Game Preserve is very much lighter than in 1926. There are no twins and many dry does. It is estimated that only 50% of the does have fawns.

Dr. Huffman of the Bureau of Animal Industry has recently spent several weeks on the Kaibab and assisted in the catch of

150 fawns, these youngsters being destined for bottle raising and later shipment to other refuges. Dr. Huffman found some evidences of tape worm among the deer and further investigations have been suggested with a view to determining to just what extent this infestation is prevalent. On the whole the Kaibab herd is said to be doing fairly well this summer, due partly to early summer rains which produced an abundance of mushrooms.

William H. Shir-cliff

By Will C. Barnes

The retirement from the Forest Service of Mr. Shir-cliff on September 25 after forty-seven years of continuous government work, including twenty-five years in the U. S. regular army, takes from among us not only a most capable and efficient official, but a man who had a goodly hand in making history in the far northwest, he being the sole living member of the famous Schwatka Expedition to Alaska in 1883.

Shir-cliff began life in a small coal mining town in Ohio. At twelve he went into the mine as breaker boy and mule driver, eventually becoming a full-fledged coal miner with a smoky tin lamp on his cap.

Determined to better his condition, he studied nights until at twenty-one he was possessed of an education far beyond that acquired by most young fellows of that time. Seeking adventure, he went to Columbus, Ohio, where a U. S. Army recruiting officer painted so vividly and interestingly the charms of army life, Indians, buffalo and the wild untamed West, that he enlisted at once.

Thus on October 29, 1880, Shir-cliff found himself assigned to one of Uncle Sam's crack infantry regiments stationed at Fort Walla Walla, Washington. In those days when typewriters were an unknown quantity, a soldier who wrote a clear, legible hand was promptly grabbed up for clerical duty. Shir-cliff writes one of the most characteristic, legible and beautiful hands imaginable and he was soon installed as company clerk. About that time Lieutenant Frederic Schwatka of of the Third U. S. Cavalry was planning an expedition into the wilds of Alaska, a country of which we then knew almost nothing. Attracted by Shir-cliff's handwriting, as well as his fine personality, Schwatka attached him to his party as his private secretary.

On May 22, 1883, the Schwatka Artic Expedition of seven men sailed for Alaska from Portland, Oregon on what was officially designated as a "Military Exploration of Alaska and the Yukon River". Marching over land from Sitka, the party, after some unusual hardships, reached the head of the Yukon and floated down the river over 1300 miles, through an almost uninhabited region, on a raft they built, arriving at the river's mouth in Behrings Sea August 6, 1883. According to Shir-cliff, it was no joyride, but every day was crammed full of adventure hardship and danger. They reached San Francisco late in September that year.

One day at the mouth of a large unnamed tributary of the Yukon, Shir-cliff killed a huge porcupine, and Schwatka promptly gave the name "Porcupine" to the stream.

Schwatka, in his history of the expedition "Along Alaska's Great River", speaks often of the valuable services of "Corporal" Shir-cliff, who kept his - Schwatkes - voluminous notes throughout the trip.

Shir-cliff continued in the army until October 31, 1905, serving the greater part of the time in the Indian country of the Northwest. He then resigned and entered the Department of Agriculture November 1, 1905, as Fiscal Clerk assigned to the Forest Service.

Very early in his life, Mr. Shir-cliff acquired a love for old rare books, especially those relating to American history, Indians, etc. He was a familiar figure at the sales of libraries, collections of books, etc. When other men were at ball games or the movies, he was hurrying from one second hand bookstore to another in search of literary treasures.

This led him into financial extravagances that in later years kept him perpetually bankrupt, but yet absolutely and blissfully happy in his never ending quest for rare old volumes. His knowledge of books on western American history and American Indians was very extensive. He soon became a widely known authority on books of this class and their values, and booklovers all over the country appealed to him constantly for information as to where rare books of this class could be found. At the present time he has at his home and stored away in various places over 12,000 volumes of selected books, many of them exceedingly rare and valuable. Best of all he knows intimately their contents. He is no mere accumulator of volumes. On his retirement, he proposes to devote all of his time to the purchase, sale and enjoyment of rare books.

His friends all through the Forest Service one and all wish him a long life and the greatest possible success in his new enterprise.

REFORESTATION IN SPAIN

Spain, which has suffered more than any other country of Europe from forest destruction, has recently appropriated $19,300,000 for a reforestation program to be carried out before the end of 1936.

HONORING MERIWETHER LEWIS

On July 19 a marker commemorating the camping of Meriwether Lewis, of the Lewis & Clark expedition, was formally dedicated at Meriwether Canyon near the Gates of the Mountains, on the Helena National Forest. This marker was placed by the Oro Fino Chapter of the Daughters of the American Revolution, of Helena, Montana. A considerable number of Helena people attended the ceremony. Speeches of acceptance were made on behalf of the State by Governor Erickson, on behalf of the State Historical Society by David Hilger, and on behalf of the Service by Forest Supervisor Abbott. A speech covering incidents of a portion of the Lewis & Clark expedition was made by Chief Justice Callaway and an address was given by representative Scott Leavitt. The opening address was given by Mrs. C. A. Rasmussen, State Regent of the Daughters of the American Revolution, Presiding officer, Mrs. M. A. Brannon. The ceremonies were concluded by a big picnic supper. In the course of his speech, Chief Justice Callaway commented favorably on the action of the Forest Service in having the names of some of the gulches in that location changed from names which had no particular significance to the present names "Meriwether" Canyon in commemoration of Meriwether Lewis, "Coulter" Canyon and "Fields" Gulch, the last two being named for members of the Lewis & Clark party; and stated that there was room for a great deal more of this class of work in the state.

FIRE PREVENTION BY REGULATION D - 5

Fire is and always will be one of the major forestry problems in the national forests of California. Long spells of hot weather combined with a lack of precipitation and low humidity make for extremely hazardous conditions during the summer months. Coupled with these is the danger resulting from the presence of 2,500,000 people who annually use the Federal forests as a summer playground and some four million additional travelers who pass through the forests - all potential sources of fire hazard. Roughly, three-quarters of all the fires that occur in the national forests of California are man-caused.

To meet this situation the California District has this year put into effect a number of old and some new and unusual forest and fire regulations, which act as a follow-up of the usual educational drive against fires, and give promise of real, worthwhile results in forest protection. A summary of the important regulations follows:

1. A camp fire permit must be secured before any fire, including fires in stoves

burning wood, kerosene or gasoline, may be started on national forest land. Applicants are required to register (name, address, automobile make and license number) at the time of securing permit. In the Angeles and San Bernardino National Forests the building of any form of camp or picnic fire is restricted to improved and posted camp grounds.

2. No smoking on national forest land, except at improved camps or places of habitation. In the southern California forests, where Federal regulations is backed by county ordinances, smoking on private lands or on roads and trails is prohibited.

3. A shovel and axe per automobile or pack train must be carried by all campers using the national forests. The implements must be suitable for fighting and extinguishing small fires.

4. In a number of the national forests, areas of particular fire hazard are closed to all forms of public use and travel, except under special permit from the Forest Service.

5. During the 4th of July week-end no fireworks were permitted in the national forests, except under special permission from the Service. In a number of the more popular recreational forests, guards stationed on the roads stopped and searched all cars for fireworks before allowing them to enter the forests.

Many forest officers will probably say that such regulations are too strict and can not be enforced. Nevertheless, we are enforcing them, and the public and the press of the state are backing us to the limit. These regulations mark a new era in national forest administration in that they not only control the use of fire in the forests but also the movements and actions of visitors who use the forests for business or pleasure. --W. H.

Motor vehicles having a wholesale value of $3,371,855,805 ranked first in 1925 value of production from industries in the United States. The industry engaged in motor vehicle bodies and parts was ninth in rank.

PRODUCING NEW GRAZING PICTURE

Messrs. Evans and Goergens of the Department Office of Motion Pictures are in District 4 producing a new motion picture designed to tell afresh the story of grazing on the National Forests. Portions of the material will be secured on the Sawtooth in southern Idaho; the work of the Great Basin Experiment Station down in central Utah will figure in the film, and stock yard and other marketing scenes will be "shot" at Ogden, Omaha or points East.

THE AMATEUR LANDSCAPER.

By Hugh G. Calkins. D - 3

That prairie-dogs are a factor in tree growth may have been known for a long time but has not been advertised. Recently, north of Ash Fork on the Tusayan, it was observed that the dogs had trimmed up a number of small junipers so that they formed spreading bushes two or three feet across and about a foot high - like the close-cropped shrubs sometimes in gardens, but of course more irregular in shape. A similar artistic affect sometimes results from goat-grazing. Roger Morris noted this same kind of landscape gardening on another part of the Tusayan at about the same time the writer made his observations. Every prairie dog has his day, but his days are numbered on the Tusayan, according to the Supervisor and the Biological Survey.

FORESTRY IN THE WOODS (??)

By H. R. Kylie

Forestry in the woods as compared to forestry in the mind of the great American public is a subject which has been agitated of late by some of our "technicians and others." Perhaps a more descriptive name for these chaps who profess to see only what Shepard has called "dirt forestry" would be "purists" and for the condition of darkness in which they grope "puritis". Many of them are good friends of mine, so I can disclaim any intention to disparage. I simply wish to present the other side.

To these men forestry is a matter of soils, and sites, and species, of annual increments and increment borings, of mixed stands, thinnings, diameters breast high, and what have you? They have themselves acquired the conviction that the country needs forests (not impossibly from the continued P.R. work which the Forest Service has been doing ever since the days of G.P.) and they perhaps take it for granted that Mr. and Mrs. Average Citizen think so too; ergo, the thing to be done now is to stop talking in general terms, and get this important couple into the woods where we can induct them into the mysteries of silviculture. It is a fine thought but quite a bit impractical

There are two classes of people who can do something about this forestry business. First, that class which owns some land. Second, that class which does not own any land. The first class, a tiny one comparatively, may grow timber if it is pleased to do so, and there are abundant signs of late years that it is being so pleased. The second class cannot grow timber but its mandate will very probably determine whether or not timber in quantities shall be grown. The first class is finding that to grow timber to advantage and with profit, which is the paramount stimulus for growing timber, and minus restrictions of various kinds it must have the support of the second class, among whom are numbered plutocrat, proletarian, and down even unto that group cyncally styled the "Great Unwashed," for these may carelessly set fire to its woods, or callously fail to support it morally in its enterprise because they do not realize the value of forests. (There are said to be children in New York in their teens who have never seen a tree). This second class represents Public Sentiment and is all powerful.

"Public Sentiment is everything. With Public Sentiment nothing can fail; without it nothing can succeed. Consequently he who molds Public Sentiment goes deeper than he who enacts statutes or pronounces decisions. He makes statutes or decisions possible or impossible to be executed." These are the words of Abraham Lincoln.

There are in the world today a great number of efficient molders of Public Sentiment. They are called advertising men. They have, for example, convinced the makers of "Pillsbury's Best" and "Gold Medal" that it will pay to spend $15,000 or more for a double page ad. in a single issue of the SATURDAY EVENING POST. They seem also to have convinced them that one ad. or two or three are not enough and that to keep the Public Sentiment fire from dying out they must keep spending this amount at regular intervals year after year, so that mills may grind and farmers may continue to grow wheat. Even when times are dull this advertising goes on just the same. They must continue to mould Public Sentiment, for housewives die and new ones arise. They must mold it for that crucial moment when the housewife wants flour; then something in her subconsciousness must be made to say "Pillsbury's Best" or if you please "Gold Medal."

You have decided you need an electric refrigerator. Which one of the several on the market would you select? Shall we say "Frigidaire?" And how did you come to the conclusion that you wanted an electric refrigerator rather than a cake of ice in a box?

We can't practice forestry in the city; we've got to get out into the woods. But after you get into the woods you can't it seems, practice forestry with the whole-hearted abandon our Purists desire. There are obstacles.

Zon, who has the ability to make us uncomfortable by making us think, says in the May 31-1926 Service Bulletin:

> "If words would make trees grow, the United States would be the most thickly wooded country in the world. Women's clubs, Rotarians, Kiwanians, hundreds of civic clubs of every description, Waltonians, sportsmen, nature lovers, foresters lumbermen, school teachers, newspapers, and lately even realtors throughout the length and breadth of the country are all talking forestry."

As far as our P.R. effort is concerned we can say: "How did they get that way?" Perhaps the secret of bringing about desirable action lies somewhere behind the effort which made them talk. Why have people accepted the idea that we must have forests? Is it not due to the years of good P.R. work which has been done - done by all of us, I mean, and not alone our P.R. office?

The same reasons which animate the commercial men in their effort to mold Public Sentiment are good enough for us. A certain State recently joined the Right Handers - (those who have acquired State Foresters). I asked one of our cognoscenti how it happened. His impression was that it had been done by a certain National organization acting in concert with the Women's clubs of the State. The Women's clubs had probably been taken in hand by a woman member of force and vision. I doubt if this lady was converted by a "Purist." I rather think it must have been by the repeated P.R. effort year upon year, and would expect to find her cold on the subject of Puritis, but a lover of the Forest. The same would be true, I think, of the National organization referred to. And if, as Zon's remarks indicate, Public Sentiment has been molded, will it continue to stay molded without an endless molding process under the artistic touch of P.R. hands? Will any of our Purists say that if in some way the effect of the P. R. work of the past fifteen years could be wiped out the average citizen would eagerly, or even reluctantly, accept the conclusion that the Nation must have forests, and as a corollary, foresters? Purists forestry is apt to be like ill-tasting medicine when taken by Mr. and Mrs. Average Citizen and our little citizens, needing a generous admixture of pleasant tasting dilutant to make it go down. Why do not Purists see this? Why assume that because forestry in the woods is what we have got to put into practice, that we can and must drop everything else and be at that?

But whether they like it or not, they will find it necessary to mold Public Sentiment so that the big second class will aid and abet the tiny first class who own land, to practice forestry on it-Forestry in the Woods-Purist Forestry. To mold the above mentioned Sentiment they will have to sell not forestry but the forest. Thus shall we create a need for foresters, and perhaps even a demand for them. We know the forestry situation and know also that ours is the responsiblity of getting it to the people. But they are going to have it on their own terms - not on ours. Let's accept the buck and find the way to translate Zon's ocean of talk into an ocean of timber. Public Sentiment is easily molded for forests. It is not easily molded for forestry-in-the-woods. There is, don't you think, a healthy doubt if it ever can be?

Hark to a member of the great Second Class, William Morris Houghton, in a recent number of JUDGE:

> "We like to talk of the importance of our vanishing timber supply and the need of conserving it. But more important than the number of board feet of lumber in a a forest is the spiritual medicine it contains for what ails us, particularly us of the U.S.A There is nothing like the sun-dappled aisle of a forest to foster in the human heart a new sense of humility, a fresh appreciation of privacy, a better perspective regarding the values of life. And if any people ever needed these things, we do."

Are not these the very items, which apparent to our Purists, caused them to choose forestry as a profession. It simply cannot be that they have been enchanted by the siren spell of annual increments. Rather than laugh scornfully at the enthusiasm of the great Second Class for the beauty and other spiritual values of the forest, we should accept it, grow trees for them, and use our broader understanding of the problem to give them not only what they want, but also what they need. That seems to me to leave ample opportunity for our Purists.

It is to be suspected that Puritis is like the measles, innocuous, and a disease common to youth - though elders sometimes catch it from the youngsters. So if you meet anyone infected with it, treat him gently until he recovers. It might help to apply a carefully chosen set of Public Relations porous plasters.

Service Bulletin

U.S. FOREST SERVICE
(Contents Confidential)

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THE TURNOVER SLOWING UP!

By G. G. Anderson

The turnover by voluntary resignations in permanent positions in the Forest Service during the fiscal year ended June 30, 1927, indicates that in the three years since our positions were reclassified the force has become stabalized to an extent previously unknown. The change is particularly striking when the comparison is made with the fiscal year ended June 30, 1923, when reclassification was still a year away, and, while under consideration by the powers that be, was by no means assured. The comparison is given in the following table:

PERCENTAGES OF TURNOVER BY VOLUNTARY RESIGNATIONS FROM FOREST SERVICE, FISCAL YEARS 1927 AND 1923

Class	No. of employees on rolls July 1, 1926	No. of resignations	Percentages 1927	Percentages 1923
Administration				
Washington, Ogden Supply Depot and Misc. Field Stations	38	2	5.3	2.7
Madison	7	—	—	—
Districts	81	1	1.2	1.2
Totals	126	3	2.4	1.6
Scientific and Technical (Except Surveyors and Draftsmen)				
Washington, etc.	78	6	7.7	—
Madison	95	4	4.2	8.2
Districts (except Forest technical)	75	3	4.	7.2
Totals	248	13	5.2	7.
National Forests				
Administration	239	4	1.5	4.2
Technical	200	11	5.5	10.
Protection	986	60	6.1	11.4
Totals	1425	75	5.3	10.
Engineering				
Washington	22	—	—	-
Madison	1	1	100.	—
Districts	87	10	11.5	25.8
Totals	110	11	10.	19.7
Clerical				
Washington, etc.	116	8	6.9	12.4
Madison	37	4	10.8	21.3
District offices	174	16	9.2	23.3
Forest offices	280	41	14.7	28.5
Totals	607	69	11.4	23.3

Class	No. of employees on rolls July 1, 1926	No. of resignations	Percentages	
			1927	1923
Subclerical				
(includes skilled trades)				
Washington, etc.	39	3	7.7	6.3
Madison	29	3	10.3	27.
Districts and Forests	51	8	15.7	41.5
Totals	119	14	11.8	25.7
Recapitulation				
Washington, etc.	293	19	6.8	7.1
Madison	169	12	7.1	14.8
District offices	468	38	8.1	18.5
National Forests	1705	116	6.8	12.6
Totals	2635	185	7.	13.4

The results of a study of the salary situation in the two years as it affects the various classes of our employees will appear in a later issue of the Bulletin.

REMOVING BARRIERS TO FORESTRY

Fourteen field men in the employ of the Canadian Forestry Association are reported to have held 750 public mass meetings and enlisted 170,000 people as friends of forest protection. The weekly record of audiences at these meetings in all parts of Canada is a strong indicator of aroused public interest in forest fire prevention. Audiences in the rural sections of Quebec have been averaging between 400 and 500, more than 85% adults. Average attendance in Ontario has been over 200.

Motor trucks are used to transport the workers from village to village in the forest areas, and Delco plants with the latest improved motion picture projectors enable the men to give effective programs, illustrating the cause and prevention of forest fires, and SHOWING THE IDENTITY OF INTEREST BETWEEN THE WAGE EARNER'S WELFARE AND A CONTINUOUS TIMBER SUPPLY.

In our own Southwestern District the traveling educational project has been recently equipped with a new ¾ ton Graham truck and a 1500 watt, 4 cylinder Kohler generator, bringing materially higher mechanical efficiency to the work. A special campaign on the Datil closed July 25 with a record of excellent attendance and gratifying public interest. In this campaign the Arkansas moving picture, "What the Forests Mean to You", shown at a time when the Mississippi floods were still fresh in the minds of all the people, made a good impression on the audiences and doubtless brought home to many the part that forests play in watershed protection.

In District 7, the Ouachita-Ozark traveling project, handled by "Jim" Wait, closed its third useful year at the end of June and is now at it again taking full advantage of local flood history as an appeal for forest fire prevention. For the fiscal year 1927 Wait was in the field 247 days, travelled 6,499 miles, and put on 170 programs with a total attendance of 37,800. The total cost of this project for the year approximates $4,100.00 or about $.11 per person reached.

Fires on the Ouachita and Ozark in 1925 totalled 650. In 1926 the total was 331. For 1927 to July 31 the record shows 182.

The Southern Appalachian project has a new conductor in the person of Arthur M. Kent, a Cornell forester who has had several years of experience in the southern field. This project in F. Y. 1927 worked on five National Forests. It spent 290 days in the field, travelled 14,131 miles. 211 programs were given before a total of 50,584 people. The year's cost for this project was approximately $5,000.00, or about a dime for each person reached. The five Forests on which it worked suffered 421 man-caused fires in 1925 and 231 in 1926. One of these five Forests, the Florida, suffered a bad relapse this spring and its fire prevention record looks bad. Another, the Alabama, has now become the Alabama-Benning, with the addition of the Benning and two other Military Reservation units. With these Military units came a big crop of man-caused fires. Even so the total number of fires on these five Forests to date in 1927 is 208. The record of a third in the group, the Cherokee, shows in 1925 a total of 147 fires, 74 for 1926 and 31 so far for 1927. The Unaka shows 56 for 1925, 25 for 1926 and 6 for 1927 to date.

As this is published the word is going around that the American Forestry Association is preparing to launch a special campaign along similar lines in Georgia, Florida and Mississippi, in cooperation with federal, state and private agencies.

Clemenceau -

"To declaim against the ingratitude of men or kings is pure waste of time, and also vanity, for every individual who is capable of devoting his life to a big cause should not expect gratitude from those of his fellow men who have benefited from his action."

J. D. RUE LEAVING THE "LAB".

J. D. Rue, chief of the U. S. Forest Products Laboratory's pulp and paper section, will leave the laboratory about September 15 to take the position of director of research for the Champion Fiber Company of Canton, N. C.

Mr. Rue has been in charge of the pulp and paper section of the Forest Products Laboratory since 1921. Under his direction the section has carried out successfully a number of researches of importance to the pulp and paper industry. Among the studies which yielded notable results were those having to do with the chemistry of the sulphite process, the bleaching of wood pulp, the semi-chemical process, the use of the rod mill as a refiner and beater, the de-inking of newsprint, the production of book paper from ailanthus, and the production of newsprint from Brazilian eucalyptus. Cooperative research with firms and individuals has become an especially important part of the federal laboratory's pulp and paper activities under Mr. Rue's guidance.

Before joining the Forest Products Laboratory, Mr. Rue was assistant to the president of the Mead Research Corporation.

THE FOREST RANGER

A modern knight, upon his faithful steed!
His steadfast fealty and love he brings
To guard the forest monarchs (helpless kings!)
'Gainst human hordes of slaughtering, selfish greed.
And dragon-tongues of fire that, lapping, feed
Upon them; is Greatheart to the little things—
The soft-furred bodies, tiny feathered wings;
Bare mountain-side he serves with forest seed.

No trumpet blare is heard; no pennant flies
For him; no crest, no blazoned shield are seen;
His only lance his poised vision keen,
Fair Fame for him holds out no hollow prize,
In lonely silences his duty lies;
His shield, invisible, the Cross of Green.

—Elizabeth Ellis Scantlebury.

AN APPRECIATION

This is Resolution No. 1, adopted by the Arizona Woolgrowers' Association at their forty-first annual meeting Flagstaff, Arizona, July 13, 1927.

> "WHEREAS, in 1925, Col. Wm. B. Greeley, the Forester, made a most thorough investigation of sheep grazing conditions on the National Forests of Arizona, and
>
> WHEREAS, during the past two years the District Forester, Mr. F. C. W. Pooler and the various local Supervisors, have, in co-operation, taken the first and most difficult steps toward segregation of ranges, and

Whereas, there is still a lot of work to be done before a final and satistory allotment of ranges to all permittees be effected.

BE IT RESOLVED, that the Arizona Woolgrowers Association, in convention assembled at Flagstaff, Arizona, this 12th and 13th of July, 1927, do heartily commend Col. W. B. Greeley, the Forester, C. E. Rachford, Chief of Grazing, F. C. W. Pooler, District Forester, and the Supervisors of the Coconino, Tusayan, Prescott, Sitgreaves, Tonto and Apache National Forests for their earnest efforts and close cooperation in endeavoring to effect a just apportionment.

BE IT FURTHER RESOLVED, that the Forest Service be requested to use their best endeavor to provide a satisfactory solution of the few isolated cases that as yet are not completely settled."

IT HAS A NAME

The newly established Forest Experiment station with headquarters at Columbus, Ohio and directed by McCarthy has heretofore been referred to informally as the Ohio and Mississippi Valleys Forest Experiment Station. The Forester has now decreed that this station shall henceforth be known as the Central States Forest Experiment Station.

DO FORESTS MAKE THE EARTH?

(Extracts from a letter to the Forester, dated July 2, 1927.)

"The undersigned, Georges Hagnerel, Forest Expert, Attorney of the Ministry of the Devastated Regions of France, Chevalier du Merite Agricole,***has the honor to inform the Chief of the Forest Service of the United States that he has discovered the process of the formation of soils which results from the metamorphosis, after several stages, of buried woody matter.

"These discoveries*****establish without error or reservation that it is the virgin forests and all the stands of isolated trees which have created almost all the strata of the earth and consequently all the substances and materials which they contain, including the gases.******

"When the stump falls with the trunk or when the tree falls and pulls out the stump the disorganization of the tissues *** is accomplished by means of insects, and produces a powder which is gradually covered with new vegetation, and then either becomes mineralized under the action of water, or is transformed into clay loam or other plastic substance like the layers which lie below and with which they are in contact. ****When the stump and the roots remain in the soil after the trunk has been removed ***fungus attacks the woody substance and incrusts it throughout and forms chalk or marl or gypsum or other calcareous rock***Or fungus attacks the woody material only in the thin surface layer and under its protection the internal cellulose changes to pulp either completely or partially. Sometimes this pulp is either changed into plastic substances (clays) or else it solidifies and becomes rock or rocks, generally soft; sometimes it is associated with substances contained in the cellulose (gum, gulcose, resins, latex, etc) and forms hard rocks, sometimes veined, sometimes colored; then sometimes these substances run out from the interior of the stumps and roots into the open air; they coagulate, they vitrify, they crystallize; thus forming agates, precious stones, amber, metals, diamomds, copper, lead, silver, and still others.

*******"What has fooled all the geologists in the world is that they have seen, and always see, the stones, the rocks, and the minerals in the state in which they find them; That is to say, arrived at the last stage of their formation---but before arriving at that stage, all these things have encountered several different transformations; before being stones the stones were wood.***

"These discoveries now teach us that the tree, together with the water and the insects, has created everything upon the globe, and that for this reason it should be proclaimed sacred among all civilized peoples."

DISTINGUISHED VISITORS AT TAOS D-3.

Vice President Charles Dawes, Mrs. Dawes, Governor Dillon, Ben Ames Williams, Kenneth Roberts, George Barr McCutcheon, and others made up a party of visitors at Taos, headquarters of the Carson Forest and famous for several other reasons, on August 10. The Vice President, with his familiar pipe, was naturally the center of attraction. In the evening the party were entertained at the Pueblo with Indian dances given around a huge bonfire, and afterward short speeches were delivered by Mr. Dawes (with Joe Lujan as Indian interpreter), the Indian Governor Jose de la Cruz Concha, and Joe Lujan. In the Circle Dance around the blazing fire joined in by many of the crowd now and then a solemn chant went up "we-want-to-see-Dawes-dance." The Vice-President, however, preserved the dignity of his position and did not enter the circle of dancers.

The Carson office was also favored with a call from Ben Ames Williams, whose story "Free Camping" which appeared in the Saturday Evening Post in 1925 was reprinted, with permission of author and publishers, and distributed extensively by the Carson among National Forest visitors.

THE WATERSHED PROTECTION PROBLEM

By C. K. Cooperrider

The mission of range research is that of solving problems common to satisfactory use of range lands and to range production of livestock from native forage plants. The success of range research may be measured by the degree to which land owners both private and public, are convinced of the necessity of constructive range practices.

In dealing with National Forest range, research must determine the practical methods of range management that will result in accrued benefits to the forest, offsetting the harmful tendencies of grazing, and should show whether or not certain areas of given character and value may be safely subjected to grazing. District Range Research considers it fitting at this time to give priority to citing influences with which it deals, as coinciding with or jeopardizing the primary purposes of forest protection. If the application of our findings is to add to the permanent stability of the stock industry, using forest lands, grazing investigations must look deep into the interests of the forest, be they timber production or watershed protection.

The significance of natural reproduction in the practice of forestry locally, the importance of the basic resource, soil, are matters emphasized annually by some members of this committee. It would seem that through such continued emphasis only do such questions become live issues. Stress has been laid on the necessity of greater appreciation by the average field man of the fundamental objects of forestry and of the correlation of the various uses with these objectives. Do too many of us accept the principle of watershed protection as a dogma, a part of our creed to become engulfed in the administration of those forest influences that govern protection, so losing sight of the resources for which protection was intended, or does familiarity breed disregard as well as contempt? Many of us have lived with situations until we apparently become immune to their serious aspects or in a measure accept the attitude of the public with whom we deal.

There are very striking examples of attitude toward the relative importance of protective work. Attitude that leads to the conviction that the attention of the many, even to questions of fundamental importance, is secured through constant agitation of the few. The importance of fire prevention and suppression is preeminent in every administrative officer's mind. More power to the influence that causes such respect of duty. However, on much of our area of strictly watershed values we have protected from fire and lived with practices of grazing that directly defeat the purpose of fire protection.

We are all much more horrified by the destruction of existing timber, by the timbe trepass than we are by the influences, excepting fire, that jeopardize potential timber of the future. Things pertaining to timber and forage are in the average mind more worthy than things pertaining to watershed and yet the very existence of the Southwest is dependent on water. Had our name been Watershed Service with a like responsibility for water as timber, the psychological effect of the name would probably have produced the opposite viewpoint.

The plea is not for less consideration of fire protection or of timber growing, but to save the portions of our untimbered watersheds on which protective cover may readily be restored and to place all on a basis of progressive improvement, a condition upon which stream control, power development, engineering works and sustained agriculture through irrigation is dependent.

It is reasonable to believe that but a few years hence watershed values will be as well realized and as keenly prized in southern Arizona and New Mexico as they are in southern California to-day. The public will then judge the success of forest administration largely from accomplishments in watershed protection. Whenever a wash constantly coming with earthy matter, an arroyo whose tentaclelike arms are reaching out for the last pinch of alluvial soil in valley or canyon floor, or the herring bonelike structure of a mountain side shot with gullies, is generally considered as serious a matter as fire, we will be started on the road that leads to actual forest protection.

The condition of certain areas of great value, the importance of years or days in furnishing a degree of protection that will result in starting the remaining vegetative cover on a basis of progressive improvement is the most serious side of the watershed problem to be realized to-day.

This matter of destructive grazing is no new problem; the East knew it, the Middle West went through that stage, but the range of those regions was in a large measure turned into productive farm lands and the economics of land ownership forced protection for forage producing lands. Public lands have usually received little consideration from the range user. Nature has at least in a measure cared for the range that could be used seasonally only. The overgrazed browse range that continues to support livestock yearlong has been one of the worst sufferers. Our strictly watershed forest is usually composed of vegetation characteristic of semi-arid regions. Variations of climate and extremes of topography in the semi-arid mountains result in a very delicately balanced relationship between protective vegetative cover and soil.

What is to become of the yearlong range country when no longer suitable for profitable grazing use, and what of the community dependent on that range as a watershed? The use of irrigable lands for agricultural pursuits is the largest of the big local industries that has been based on anything not mining in character, that has not resulted in a tendency toward the viewpoint of gut the country and get out; yet agriculture and especially its associated urban centers is comparable to the city of old, drunk with the progress and prosperity of to-day while unappreciated forces of destruction are at work.

Even if such views may be considered as somewhat radical and granting that any widespread publicity liable to excite alarm is of doubtful constructive merit, it will do us no harm to occasionally forget the trials of the day, and to think of what is in the making not only for the immediate but for a distant future and to what extent the civilization of that day will justly hold us responsible. Must we let conditions continue as they are or will administration take immediate action on the basis of known facts and will adequate funds be made available for further research on which to base future administration?

Service Bulletin

U. S. FOREST SERVICE

(Contents Confidential)

VOL. XI. No. 36. WASHINGTON, D. C. SEPTEMBER 5, 1927.

"FOREST FOLLIES" - 1926.

By "The Lookout"

Nearly 34,000 fires were reported within the protected (?) forest areas of the United States during 1926. Credit lightning with 4,100, or 12 per cent. The remainder, 29,900, or 88 per cent, (with some allowance for 5,200 labelled "cause unknown") must be chalked up against The Outlaw - fire carelessly or wilfully turned loose in the woods by man!

Of our total forest land area needing protection (525,000,000 acres), only 339,000,000 acres, or 65 per cent are within the protected area, and the protection afforded ranges all the way from quite thoroughly fire-tight systems on some private, State and National forests down to the merest beginnings of educational preventive effort.

The estimated number of fires on all the forest lands of the country mounts to the stunning total of 91,793.

Considering only the areas covered by the private, state and National Forest protection systems, the Pacific group of States-Washington, Oregon and California - yielded the heaviest regional crop of fires in 1926, totalling 6,810. Of these, 7[illegible] per cent were man-caused. Actually, however, the Southeastern group - the Carolinas, Georgia, Florida, Alabama and Mississippi - outburned all other sections, for while no more than 5,284 fires were reported from protected areas, conservative estimates charge that group with 48,956 fires outside such protected areas. In other words, 54,200 or 59 per cent of all the forest fires in the United States occurred in these southeastern states The West Mississippi Group - Missouri, Arkansas, Oklahoma, Louisiana and Texas - appears as the next worst fire region, with 2,656 fires within protected areas and 8,000 more outside such areas.

The State of Mississippi, with 23,170, suffered more fires than any other state. Alabama was next with 14,953, and Georgia was third with 6,446. At the other end of the scale Delaware had but 37 fires, Rhode Island 43 and Vermont 73.

Within the areas under protection the 33,867 fires reported burned over 1,040,000 acres of merchantable timber, 1,682,000 acres of non-merchantable or immature tree growth and 1,394,000 acres with no tree growth at the time, the total area of forest land burned thus reaching 4,116,000 acres. Including the unprotected regions it appears that over 24 million acres of forest land were scourged by fire during the year.

Where protective systems were functioning in 1926 nearly 61 per cent of all fires were confined to areas of less than 10 acres, and less than 2 per cent exceeded 1,000 acres. Within the protected areas as a whole the average fire burned over 140 acres, as against an indicated average of 337 acres per fire on lands without protection.

In the protected forests of Arizona the average fire covered only 2.4 acres, in Colorado 7.9 acres, New Mexico 10.3 acres, Vermont 12.4, Wyoming 13.4, New Hampshire 16.7 acres. In Florida, with only a very small protected area, the average fire burned over 373 acres, the Wisconsin average was 355 acres, Minnesota 354 and California 353. Pennsylvania held the average fire to 77 acres, New York to 56 acres. Virginia's fires averaged 161 acres, Maryland's 116 and West Virginia's 53.

To confine the annual burn to less than one-tenth of one percent of the area under protection is often stated as the objective of many protection organizations. In 1926, Maine, Vermont, South Dakota, Wyoming, Colorado, Arizona, New Mexico and Nevada attained this goal. Alabama fires burned over 4.67% of the forest land in protected areas, North Carolina 3.71%, New Jersey 3.61%, Maryland 2.67%, Minnesota 2.10%, California 1.83%, Washington 1.69%, Louisiana 1.64%.

The total damage within the protected forest areas is placed at slightly over $15,000,000, with the grand total for the entire country mounting to nearly $27,000,000.

Of the $15,000,000 damage within the protected areas, $4,061,000 is charged against lightning, leaving $9,939,000 in the category of avoidable damage. Taking the same ratio to the entire forest area of the country, the national tribute exacted by careless or wilful woodsburning figures roughly $20,000,000 for 1926. It's a sizeable bill. Are we doing ALL that we should and can do to reduce it?

A WILLINGNESS TO GO

By Jno. D. Guthrie, D-6

John B. Cuno's article "Military Training Camps" in the Bulletin of August 8 is timely and to the point. The very liberal provisions of the Department of Agriculture allowing for attendance at training camps on pay and without losing one's annual leave is hardly appreciated by the personnel of the Service. True that there is a sprinkling from each District each year who do spend the required two weeks, but a very small percentage of our reserve officers make any effort to attend, and a far smaller percentage of our personnel apply for commissions in the reserve corps although many are eligible who would profit by such commissions and attendance at camps.

In the North Pacific District it is known that there are some 12 men who hold reserve commissions, six members of the District Office, headed by the District Forester himself, and six field officers, one forest supervisor and five rangers, one of whom incidentally is a major in the Air Reserve and a regular attendant at a camp. During the past five years, six of these twelve have attended training camps.

Under the present rather liberal rulings of the War Department, if summer work absolutely prevents us from attending the camps, it is possible to be assigned to a camp for special training during the fall, winter or spring. So, as Cuno says, we have the statute and the official encouragement from the War Department--all we need is the willingness to go.

PERMANENT INDUSTRY.

A Swedish lumber company recently celebrated its seven hundredth anniversary. It is said to be the oldest lumber concern in existence. Because of its scientific methods its forests, cut on a continuous yield basis, are in better condition today than ever before. Every seventy or eighty years the loggers turn to the same timber tract for cutting. The cut-over land problem does not exist. "The Lumber Manufacturer & Dealer".

FORGET IT

If you see a tall fellow ahead of the crowd
A leader of men marching fearless and proud,
And you know of a tale, whose mere telling aloud
Would cause that his proud head in anguish be bowed,
It's a pretty good plan to forget it.

If you know of a skeleton hidden away
In a closet, and guarded, and kept from the way
In the dark, and whose showing, sudden display
Would cause grief and sorrow and lifelong dismay,
It's a pretty good plan to forget it.

If you know of a thing that will darken the joy
Of a man or a woman, a girl or a boy,
That will wipe out a smile, or the least bit annoy,
It's a pretty good plan to forget it.
(Clipped)

THE UINTAH BASIN INDUSTRIAL CONVENTION.

A. G. Nord, D-4

August 5th terminated a three day session of the Uintah Basin Industrial convention at Ft. Duchesne, Utah. This was the 5th annual event featuring activities which have and will continue to contribute to the Basins industrial and educational welfare. Fifty-three hundred people by actual count were present the opening day, and it was estimated there were 10,000 each of the remaining two days. The total registration was 14,000 people. This was the largest attendance of any previous convention and there were present a greater number of visitors.

The general section of the program was filled by speakers representing various departments and institutions of the state and nation. Among those in attendance were Congressman Don B. Colton, President E. G. Peterson, Utah Agricultural College, R. H. Rutledge, District Forester, who gave an outstanding talk on Forestry and Forest Roads and Trails; Dr. Geo. Thomas, President University of Utah, Dr. Geo. Stewart, Utah Agricultural College, H. H. Blood, Chairman Utah Road Commission, William Spry, Commissioner of the General Land Office, and other speakers of note.

Departmental sessions were divided into six sections as follows: Range, Livestock, Field Crops, Foods and Nutrition, Home Management, and Clothing, all of which were presided over by specialists in the respective fields, who lectured for two two-hour periods each day. Appropriate exhibits were also provided in the exhibit hall in furthering the work of the respective fields.

C. L. Forsling, Director of the Great Basin Experiment Station and Prof. R. J. Becraft of the Utah Agricultural College were the instructors in the range section, dealing with the subject of "Our Fall and Winter Range Problem" and "How shall we manage our public domain". A portion of each period was taken up by the assemblage in general discussion of this great problem. Here the cattleman, sheepman, and the farmer gave free expression of his views bearing out his interest in this public resource, culminating in a unity of opinion that something must be done to safeguard the stock growing industry of the state and to prevent further dissipation of a national asset. This was indicated by the following resolutions being passed unanimously by the livestock and farm bureau members in attendance:

No. 1 RESOLVED: That we, stockmen assembled in this Uintah Basin Industrial Conference, favor control of the public domain and regulation of grazing thereon by the Federal Government.

No. 2 WHEREAS: Range livestock production is one of the principal industries in the Uintah Basin and in the State of Utah,

and WHEREAS, the livestock industry is dependent upon better range conditions on government and other range lands, and WHEREAS, more knowledge is needed for determining the best methods of improving conditions and utilizing the forage on range lands,

NOW, THEREFORE BE IT RESOLVED: That we, the stockmen of the Uintah Basin Industrial Conference assembled in convention ten thousand strong, at Ft. Duchesne, Utah, on August 5, 1927, do most respectfully petition that Congress make appropriation of funds sufficient to carry on adequate research work in the improvement of forage conditions on range lands.

DEPLETED FORESTS.

VICTORIA (B. C.) DAILY COLONIST: An official report on the timber situation in the United States has called forth the following comment from Sir John Stirling Maxwell: "No reader can close this remarkable document without a grave presentiment of timber famine; and no British reader should forget that in the event of such a world disaster the United Kingdom is destined to be the chief victim." It is not only in the United States but in other great timber-producing countries as well that forestry resources are being rapidly depleted to meet growing demands. Calculations have been made by world experts to show that there will be famine conditions within the next twenty years. The statistics are available in this regard. The gravity of the situation is found in the fact that Governments are practically deaf to pleas for conservation, preferring, instead, to derive what revenues they can for the time being out of the forest resources within the areas they govern.

The real remedy in the way of reforesttation has yet to be applied on any extensive scale in this country, and in this Dominion, too, there is an urgent need to prevent the export of our raw wood products. The time has passed when those who have uttered warnings about the timber situation can be regarded as alarmists. All world authorities are agreed on the seriousness of the situation which is bound to develop within the next two decades. The warnings have a special application to British Columbia, which contains some of the greatest of the last stands of timber on earth.

(Frank J. D. Barnjum)

OUR SECTION OF PRINTING

Letters from the public, from every State in the Union and from many foreign countries, requesting information and publications on the National Forests and forestry, and on various other and quite distantly related subjects flow into the Public Relations unit of Publications and Printing in the Washington office at the rate of about 1,000 each month. No matter what the inquirer wants, nor how misdirected the inquiry may be, such letters are given careful, considerate attention. That's the rule of the office. Last fiscal year of 11,639 such letters received, 5,869 were partially handled in this unit and then passed on to the Department Office of Information for mailing of publications. 807 were referred to other Departments of the Federal Government. 3,389 were completely handled within the unit, and 1,575 were referred to other Branches of the Forest Service. In reply to inquiries slightly more than 3,000 letters were written.

During the same year approximately one and one-quarter million sheets of mimeographed material were assembled and stapled, (collated if you prefer) for the other Branches of the Forester's office and District 7. PR itself is the big customer in this line, 435,000 sheets being handled for this Branch. D-7 was second last year with 385,000 sheets.

Requests from Districts and Branches for printing of publications totalled 61 within the year, and requests from the same sources for job printing numbered 383. The Section of Printing prepares the final layouts for these publications and printing jobs, arranges for the printing, reads proof, and prepares the plan of distribution.

Among other activities of the unit the

Service Bulletin is here assembled, stapled and mailed; the Forest Worker is distributed and unnumbered wrappers, envelopes and franks prepared and addressed for mailing publications.

In connection with American Forest Week, 1927, this unit handled 491 orders, calling for 2,500,000 pieces of material designed and prepared especially for this annual observance.

Try and catch this outfit loafing.

ARIZONA ACQUIRES BUFFALO HERD.

John D. Jones, D-3.

D. E. Pettis, State Game Warden, recently announced purchase by the State of Arizona of 40 head of buffalo. The herd is in House Rock Valley, which lies just west of Lee's Ferry on the west side of the Colorado River, and on the edge of the Kaibab National Forest and Game Preserve. The buffalo comprising this herd have been in House Rock Valley for a number of years, having been left there by "Uncle Jimmie" Owens and Buffalo Jones after these two old scouts had driven the animals from Texas to Montana and back again. The increase in the herd last year was 15 calves, and so far this year there are 8 calves.

THE ASHLEY ARBORETUM

Officers of the Ashley Forest, in the northeastern corner of Utah, have located an area near Moon Lake where there is a complete merging of all species of trees common to this region of the Uintah Mountain Range. Here in unusual association are found trees whose habitat normally extends down to the sun-parched plains of the basin lowlands with those that reach the limits of the upper timber line in the close region, of perpetual snows.

Within a range in elevation of just a few hundred feet, and covering an area of approximately 10 acres, the following species are found.

Pinus ponderosa - - -	Yellow pine.
" murrayana - - -	Lodgepole pine.
" flexilis - - -	Limber pine.
" edulis - - - -	Pinon pine.
Abies lasiocarpa - -	Alpine fir.
Pseudotsuga taxifolia	Red Pine.
Juniperus utahensis -	White Cedar.
" scopulorum -	Red cedar.
" sibirica -	Dwarf juniper.
Picea pungens. - - -	Colorado blue spruce.
" engelmannii - -	Engelmann spruce.
Populus anngstifolia -	Narrow leaf cottonwood
" aurea - - - -	Aspen.
Acer glabrum - - - -	Rocky Mountain maple.

Such a complete merging of species whose habitats normally cover elevations ranging from 5,000 to more than 11,000 feet is a very rare occurrence and may not be duplicated. It is certain to offer a very interesting field for scientific study.

The area is being made accessible through trail development and other improvements will be added by the Forest force to make it a novel field exhibit, to be set aside and protected for the benefit of visitors to the National Forest.

THE BOY SCOUTS RESOLVE

"WHEREAS, God gave us trees as an assurance of awakening life in the springtime; comforting shade in the summer; for beauty in the fall; for warmth in the winter's chill; for shelter from the inclemency of weather; for ordinary necessities of life; for more than we can now or ever hope to account for, and,

WHEREAS, We feel that all of this has been placed in our hands in trust - to love, to guard, to conserve; therefore be it

RESOLVED, That We, members of Troops 1 and 2, Green River; Troop 3, Rock Springs; Troop 1, Superior; Troop 1, Winton; Troop 1, Reliance; Troop 2, Evanston; Wyoming; Boy Scouts of America, pledge ourselves not to use our axes on living trees while on hikes, either individually or collectively; that we will extinguish, in approved scout manner, our fires before leaving them; that we will constitute ourselves protectors and conservators of this form of life and use our influence in having all others do likewise."

THE JUNIOR FORESTER

District Seven has issued a little brochure outlining the work and outlook for the neophyte who enters the Forest Service. It treats particularly conditions in the National Forests of the East and South, and has received among other favorable mentions the following:

From Dr. H. S. Graves: Yale.

"This is the first chance that I have had since my illness to acknowledge your letter of June 30 enclosing a copy of "The Junior Forester in the National Forests of the East and South." I am delighted with this paper. It is one of the best things I have seen for a long time."

From Dean Franklin Moon, Syracuse.

"I wish to acknowledge with deep appreciation receipt of your letter of June 30, and also the excellent brochure "The Junior Forester in the National Forests of the East and South".

I have read the latter very carefully from cover to cover and find it an excellent presentation of the field in the National Forest Service, and believe it should be read by every prospective forester in the country.

It goes without saying that those of us in the teaching end of the game realize that unless a man is mentally, physically and temperamentally fitted to the forestry profession, he is in purgatory until he gets out.

How large an edition of this publication could you send us so that we might distribute it among our boys? We have enrollment of about 340 and if you have not sufficient numbers, we could confine the distribution to the Senior class and see that a dozen or so copies are placed upon the reading table in the library so that the rest of the bunch may have their chance at it."

(Bulletin readers may have a copy on request to the District Forester at Washington.)

ANOTHER STATE JOINS THE LIST

D- 3.

The State Highway Commission of New Mexico has directed W. C. Davidson, State Highway Engineer, to remove all signs from the roadside, and while not everybody will agree with the inclusion of distance markers in the ban, on general principles it is very heartily approved. This though the result will be that the placers of the signs will in most cases simply move them back a little way from the road, with or without the consent of the property owners or the government. If it were only possible to eliminate these defacements altogether, it would be a fine thing. It is only recently that New Mexico has come to realize what a nuisance, or rather what an offence they can be. It is doubtful whether there is any state law which can entirely eradicate the evil, though there should be, and the order of the commission is certainly a step in the right direction pending such time as there may be an attempt to secure adequate legislation on the subject.

AIRPLANE COOPERATION IN FIRE PATROL

Through the good offices of the Denver Chamber of Commerce, we have succeeded in enlisting the cooperation of the Colorado Airways Inc., and the One Hundred and Twentieth Observation Squadron of the Colorado National Guards in forest fire patrol on the National Forests along the eastern slope of the Continental Divide in Colorado. - D. 2.

Service Bulletin

U.S. FOREST SERVICE
(Contents Confidential)

VOL. XI. No. 37. WASHINGTON, D. C. September 12, 1927.

ON THE TRAIL OF THE VANISHING LONGHORN

by Will C. Barnes

When the first Spanish adventurers set foot on this American continent they found neither horses nor cattle. Both are exotics. The nearest approach to cattle was the bison, mistakenly called "buffalo". "Hump-backed cows", the Spanish called them.

The first cattle to set foot on America's shores were swum ashore near Vera Cruz, Mexico in 1521, from some ships under Gregorio Villalobos, a governor-general sent to "New Spain" as ruler. The written report of his voyage says clearly: "He brought a number of calves (OVIESE GANADO) from San Domingo, he being the first to bring them to New Spain." The custom then was to break the journey from Spain by stopping at the West Indies for rest and recuperation. Hence the shipment from San Domingo.

The Spanish have never been interested in improving their livestock. If they had any ideas on this subject where cattle were concerned it was to produce a leggy, active animal with keen horns, an aggressive disposition, and a nature suitable for their national pastime. Beef production undoubtedly came second with them.

These Spanish calves were the progenitors of the millions of longhorn cattle that spread rapidly fanwise from Vera Cruz, over the coastal plains of Texas and the Great Plains region of the far west. In the forage and climatic conditions these Spanish cattle found themselves in a region very like that they left in Spain, and they thrived from the very first.

Texas at the close of the Civil War was overflowing with longhorn cattle. With the end of hostilities this overflow surged northward across the plains until from the Gulf to Canada this hardy breed pressed the buffalo and the Indian back and back until the whole country was theirs.

They were the pioneers, but like pioneers they had to give way to the demand for improvement. "Too much legs, horns and speed, and not enough beef", was the general opinion of the range men. The longhorns had had their day. They were driven from the ranges, not by force but by the simple process of evolution -- the survival of the fittest.

Thus within a comparatively few years this breed of cattle, so closely tied up to the history, romance and adventure of the Southwest, was about to become extinct. To some men who had known the longhorns for almost half a century this seemed almost a a tragedy - a national misfortune. Appeals for money to buy a few from those still left fell for years, however, on deaf ears.

"Qui bono?" the law makers asked in the old school-boy phrase. "No economic values are involved. They have served their day. Let'em become extinct. Forget them," was the general comment on the plan.

"Listen", said these friends of the longhorns to the solons," Congress spent

$25,000 to save the buffalo that never were anything like as near complete extinction as are the longhorns, you spent quite as much in 1906 to save the remnant of the old Morgan horses which were due to pass out of the picture at an early date unless something was done to save them, Massachusetts is spending this year more than ten thousand dollars and the whole country applauds the act, to save the heath hen from extinction. There's more sentiment, romance and real history of the southwest connected with the longhorns than a whole flock of heath hens."

Eventually a small sum was granted for the purchase of a few cows and some bulls, and two very much pleased forest officers went down into Texas in search of longhorns--and adventure. They found both.

At Fort Worth, San Antonio and other points the general feeling was that their quest would be unsuccessful. "A few old cows might be found", they were told, "away down in the 'prickly pear' country of the lower Rio Grande, in the dry RESACAS or the cottonwood BOSQUES along the river, or in the dense mesquite thickets of the plains." But bulls! Well, that was something else again. Everybody doubted them.

Mr. Hatton found the Denver office and I first plunged into the prickly pear country between Laredo and Brownsville on the Rio Grande and Corpus Christi on the Gulf. We hunted out every nook and corner of this region on every imaginable kind of transportation. We had to invent a standard type by which to make our selections. We talked longhorns to every human with whom we came in contact. From it all and our own experiences in the past we built up in our minds a picture of the old-time longhorns from which we developed a standard or type. Here and there we found a cow or a bull that measured up to the standard.

It was a case of selection and elimination. In two weeks we had spotted ten cows and one bull in that corner of Texas as meeting our requirements. They were found one here, one there. We hired a cattleman who knew the country to gather them at one central point for shipping. This was done mostly with auto trucks carrying a huge crate. The truck was backed up against a corral, holes were dug into which the hind wheels would drop, and the cows coaxed or dragged into the crate or cage and hauled across country to the railroad.

Having exhausted this end of Texas we moved up into the great coastal plains region between Houston and Beaumont. Here was an entirely different country -- vast open prairies with some "piney woods" and scattering mesquite. Ten thousand acres in a single rice field. A hundred and fifty thousand acres in one cow pasture. One of the great range cattle sections of the state. We were told to go here because the longhorn steers for the "North of 36" movie were gathered from these ranges. We combed the region thoroughly. Ninety per cent of the cattle were carrying the blood of the Sacred Hindoo or Brahma cattle. Occasionally we found a cow we wanted. We gathered ten excellent cows and two good bulls in this section.

Inasmuch as the steers are the ones that develop the extremely long horns, we bought three glorious animals with good-sized horns to be kept as an exhibit of what a longhorn should be. They are all young and their horns will probably grow at least 18 inches more in the next three or four years. They will fill out the picture until we can raise some ourselves.

The two shipments were concentrated at Fort Worth and held for 15 days, during which time they were dipped three times at seven-day intervals to free them of the deadly Texas fever tick. Then, because Oklahoma requires all breeding cattle entering the state to be tested for T.B., they were crowded into a long narrow chute and a veterinarian of the B.A.I. injected into the tail of each animal a dose of T.B. "medicine". Three days later they all went through the chute again to see if there were any "reactors". There was none. Then the whole bunch was put through a branding chute and branded U.S on the left hip. Some ordeal, believe me.

The horns of the three big steers

would not pass through the "dip" so they had to be roped, tied up to a post, and sprayed just as a gardener sprays his rose-bushes. To this operation they objected most strenuously and we were in an agony lest in their struggles some of those precious horns would be broken. Fortunately no accident occurred.

During the time the animals were in the Fort Worth yards they were visited by hundreds of people. Five different movie outfits took shots at them, during which time the senior forest officer was chased up the fence several times by angry and excited steers that did their best to help him up with those long keen horns. An unfeeling observer remarked sarcastically that the proceeding reminded him strongly of an alley cat hustling up a city shade tree just about one jump ahead of a lively fox terrier. The principal actor can only recall that like some airplanes he seemed to lack speed and climbing ability. It was a red hot day and he remembered later the fact that considerable shirt tail fluttered in the breeze as he mounted the fence. Also that he had a weak heart and his doctor had warned him against any violent exercise. He survived, however, but expects prompt divorce proceedings if the lady that shares his fortunes ever sees those movies.

While inspecting one steer at a ranch in a mesquite thicket away down near Laredo, another hasty fence climbing took place, with the long keen horns of a surly old steer playing a regular tattoo on the soles of the man's shoes. There was also a short but very interesting foot race just before the fence was reached that undoubtedly broke the record for a fifty foot sprint. While perched precariously on the top board of the fence with the aforesaid surly steer still on the job, the man's pet Panama blew off and landed in the center of the corral. With a mad bellow the steer jumped for the hat. What he did with it was a plenty. He stamped on it, slobbered over it, pawed at it, and finally managed to impale it on one of those rapier-like horns. Then he pranced excitedly around the corral, snorting and bawling and wearing in triumph that head covering from the tropics. A million dollar movie lost to the world!

Eventually the hat came off and the steer, apparently highly pleased with himself, backed off into one corner and watched the taking of his picture without further action on his part.

It was like old times to one of the men to sit in the caboose of a long freight train with a car of cattle ahead, and crawl out "over the top" of the train in the dark night and make sure his cows were all there. Cache and the Wichita Forest were eventually reached and the cattle placed in the pasture provided for them. Swarms of people came out from surrounding cities to look them over and the old-time cow men of the region all agreed that the bunch we secured were really fine specimens of the old longhorns -- perfect types with which to build up a modest herd of 250 or 300 head and thus preserve the breed for future generations of Americans to admire. Like the buffalo, the longhorn will not become extinct.

SAVES PATROL WITH WATER OUTFIT

By Hugh G. Calkins, D. 3.

The Tusayan has a fire-fighting instrument consisting of two hot-water tanks connected by piping and equipped with tire valve-stem, air gauge, garden hose, etc. An air-compressor pump goes with it, but the pressure can be brought up to any desired degree at a service station or with an ordinary tire-pump. In the latter part of May the use of this outfit saved at least 24 hours patrol on a fire burning a small area of duff and large pine log. The tank, mounted on runners, can be slipped into a truck in a moment's time, and is part of the equipment of the Camp Clover fireman, ready for use on any fire on or near a road.

FIELD DAY AT THE GREAT BASIN EXPERIMENT STATION

By A. G. Nord, D-4.

Feature yourself in a caravan of forty-seven automobiles wending its way up a rather steep canyon road along which much of the work of the Great Basin Experiment Station is located; this caravan stopping at frequent previously selected stations where the passengers, enthusiastic, yet serious minded stockmen and others interested in range problems, climbed out to see the results and hear and take part in the discussion of range research in natural revegetation, artificial reseeding, and the relation of grazing to watershed protection. That is something of the picture of the third biennial field day at the Great Basin Experiment Station on August 16 and 17, 1927.

Not less than two hundred people in all were in attendance during the field tour and evening meeting of the 16th and the morning meeting and nursery inspection of the 17th. There has probably never been a more representative gathering of persons interested in livestock problems on a Forest Service project before. There were such men as the president, secretary and ten members of the advisory board of the Utah Wool growers Association, the president of the Utah Cattle Raisers Association, the president of the Utah Farm Bureau, the president and several directors of two water users associations, Congressman Don B. Colton, the president of the Senate and the Speaker of the House of Representatives of the Utah State legislature; the president or other representative of several banks, the president of the Sanpete Stake and several Bishops of the Mormon Church, besides numerous cattlemen, sheepmen and water users from every part of Utah including the officials of a number of local cattle and sheep associations of the state. State workers included the Director of Extension and Experiment Stations, several county agents and others from the Agricultural College and two extension workers from Nevada. Among Federal officials were District Forester R. H. Rutledge, Messrs. Chapline and Hill from the Washington office, three supervisors and six other Forest officers from Utah, Montana and Colorado, two representatives of the Biological Survey and one from the Bureau of Animal Industry.

All of the sixteenth was spent examining the experimental work. A camp fire meeting was held at the Station that evening with discussion of range problems, the value of research in their solution and what better range management means toward more profitable and stable livestock production, watershed protection and general community welfare. Local community talent favored the session with a couple of hours of entertainment. The morning of the 17th was taken up by the stockmen on a discussion of the public domain problem led by Congressman Don B. Colton. Following this the remainder of the meeting was devoted to an examination of the more intensive studies under way in the Station nursery.

There were several outstanding impressions gained by the author with regard to the reaction of the stockmen as a result of the meeting. They may be briefly summarized as follows:

1. The keen interest shown in results obtained by the experiment stations.

2. Recognition by them that results will aid them in bettering their own business.

3. Their desire to see unsolved problems confronting them being studied by the Forest Service.

4. Appreciation of the need for improving the conditions on the unregulated ranges for the welfare of the livestock industry of the state

5. The recognition of the possibilities of applying the results to the public domain and the necessity

for knowing more about the range problem.

Two resolutions were adopted by the stockmen before the close of the meeting. They are as follows:

1. That as a representative body of agriculturists and stockmen we go on record as favoring Federal control of the public domain.

2. WHEREAS this body of stockmen attending as the Great Basin Convention at the Great Basin Experiment Station near Ephraim, Utah, on August 17, 1927, and after going over the experiments conducted by the Great Basin Experiment Station, and seeing the benefits already derived from these experiments with their limited means, and realizing the necessity of expansion of this work to take in the different forage plants and experiment with them as to their adaptability to the Forests and public domain of this state, and the necessity of more extended experiments with range control:

WE, in convention, hereby respectfully petition our Congressmen to use their best efforts in securing a larger appropriation to carry on this research work so necessary for building up the range of this section and we earnestly call to their attention the imperative need of more work along this line and the absolute necessity of an appropriation adequate to carry on this work, by our next Congress.

The first one is not new in thought but it takes on new significance since it came after seeing the results of efforts of the Forest Service to establish a sound basis for range management. The second one is new since it is almost the first time stockmen have given such recognition to range research. The first time was at the Uintah Basin Industrial Convention at Ft. Duchesne, Utah, where similar resolutions were passed.

LETTING THE PUBLIC KNOW.

On August 1 at 1:24 P.M., our Shuteye Lookout reported a smoke on Rock Creek, in our Yellow Pine timber belt, near the San Joaquin River. This territory has been closely protected for years, was closed to camping during our most dangerous fire seasons, and is several miles from our nearest station. Six of our best men, all Forest officers, were dispatched to the fire, some coming from Chiquito Basin, some from Ellis Meadow and the remainder from Northfork headquarters. Travel was by auto, by horse, and on foot - and the first man arrived at the fire at 3:30 P. M. By this time the fire had covered some 10 acres of timberland, and was rushing madly up the steep slopes that rise precipitously from the San Joaquin River. Shortly after midnight, by expending every effort and using every known trick of the fire fighting game, this fire was brought under control. Our men are still on the fire, felling burning snags, continually patrolling their lines and taking every precaution to prevent the escape of what would have been, under ordinary conditions, a fire of thousands of acres, a fire that would have swept the timber from our great ridges from the river to Shuteye Peak, leaving behind an area of blackened, desolate waste. It is now three days since the start of the fire, and we will feel that the danger point has been passed when not a spark remains within our lines.

Some of you who have spent many pleasant hours on the two fishing streams - Rock Creek and Slide Creek, between which this fire started, should visit the scene now - should see the great dead trees that have thrived here for better than a century, should see the young reproduction that has been trying so long to get its head into the sunlight and rise to great heights beside its brothers should see the complete absence of ground cover that has served to hold the soil and moisture in readiness for the evergreen trees after the snow had melted. There has, of course, also been a loss to wild life and to fish, and a wonderful camping ground has been destroyed for years.

This fire was caused by two fishermen who camped there at noon on August 1, and left their fire "perfectly safe," - SAFE, when one of them brushed the pine needles aside with his foot and started the dinner fire; SAFE, when the accumulation of duff and needles was over a foot deep; SAFE, when they took the precaution to sprinkle dry sand over the burning coals when they left.

Our law enforcement squad was on the job and these men, E. J. Grover, Oakland, and E. Warford, Berkeley, were arrested on the morning of August 2. Justice Baker of O'Neals fined them $50 each. They will also be held for the actual cost and damage of the fire, but who is going to replace the forest growths that have been hundreds of years in attaining their majesty, only to be cut down by the carelessness of two humans!

-- R.H.B., Sierra.

The California News Letter prints the above and remarks that it is a News Item which was sent to all San Joaquin Valley papers. Good idea?

UNIFORM AND POWDER MARKS

No doubt you all read the discussion about uniforms in the Service Bulletin of June 13. Every yearlong man and a few of the summer men on the Siskiyou has a uniform

We note Robert W. Putnam of the Fremont complains that "It shows talcum powder nearly as well as blue serge." Rob must mean face powder, for no man ever shaves with his coat on, and Lakeview has more than its share of pretty girls. In this case, however, we presume the research work was done in John Day, with most happy results - to date. But to return to the uniform, we hold that its tendency to show face powder is a weak argument against its color for there is no cloth made that will not reveal it, - if looked for by your wife. A solution of this problem is to take off the coat and do a good job in comfort besides saving the cigars and pencil points. --- J. H. Billingslea -- D-3.

DOES CONSERVATION HELP THE WOOD SUBSTITUTES?

"Conservation propaganda," particularly regarding timber depletion, is getting a good deal of the blame for the success of wood substitutes, as everyone knows who follows the lumber trade press. District Forester Peck recently asked for the Forester's attitude on this question, and the following paragraphs are taken from the Forester's reply:

"Instances have been brought to my attention where the conservation of our limited supply of timber has been used as an argument in promoting the sale of substitutes for wood. It is probable that another argument more widely used in the trade is that wood is going to disappear as a cheap and universal structural material, and hence that the architect, contractor, or distributor had best deal with other materials which have promise of permanency.

"Doubtless publications of the Forest Service have been drawn upon and utilized in this advertising warfare to a greater or less degree. I doubt, however, if many lumbermen believe that the Service has deliberately encouraged substitutions for timber. We have urged for many years the essential and permanent relationship of an adequate supply of timber to national, social, and industrial needs and the importance of maintaining this supply so that wood will always be available and reasonably cheap. I have said on many occasions that the answer to our timber problem is not more restriction or curtailment of use but more production of the raw material. I have never favored embargoes on lumber exports or that sort of thing.

"As a matter of fact I do not believe that the substitution of other materials for wood has been influenced at all by conservation propaganda. It is an entirely normal competitive process. It has resulted (1) from the price levels of lumber in recent years which have given competing materials a better opportunity; (2) from the aggressive perfection, production, and merchandising of other materials; and (3) from changes in types of construction, particularly urban construction. Timber depletion has affected it to the extent that the regional exhaustion of virgin stumpage has created higher price levels for lumber in many of the large consuming territories.

"In this connection I enclose a copy of a letter which I wrote last year to Mr. G. E. Markham of the General Electric Company. Its purpose was to oppose the notion that a restricted use of lumber is necessary in the cause of conservation. As this letter brings out, competition between lumber and other materials is a good thing in giving the consumer greater service and greater opportunity to obtain exactly the type and quality of structure that he wants. As far as forest conservation is concerned, I believe that the more wood is used and the more stable markets for forest products are, the better. They will encourage the reforestation and productive use of our immense area of forest-growing soil.

"On the other hand, the Service can not of course urge the consumers to use wood for purposes where better materials are available. It must maintain its place and consumption on its own merits. To the extent that its merits justify continued use, in comparison with other materials available, I thoroughly agree with your slogan, 'Do not use less timber, but grow more'."

The following extract is from the Forester's letter to Mr. G. E. Markham of the General Electric Company.

"I have never believed in the 'hoarding' conception of forest conservation, either through embargoes upon lumber export, strictures on domestic consumption of forest products, denying children their Christmas trees, or any other miserly device. The solution of our forestry problem in the United States lies in timber growing, not in timber hoarding. One-fourth of our soil is forest land. That is a talent that should be kept at productive work, not put away in a vault. It is entirely possible through continuous timber crops not only to supply permanently the wood which the country needs in satisfying all its wants, but what is of even greater importance in my judgement, to prevent land idleness, maintain or restore our declining rural population in many sections, and so contribute in a very important way to national strength. In timber growing, for example, lies the opportunity for an economic rehabilitation of rural New England."

SMOKERS' FIRES

By Jno. T. Guthrie, D-6.

The number of fires caused by smokers has been steadily mounting in the North Pacific District year after year since 1922 when we first began to record this class of fire causes. We are not here concerned with the possibility that much of the evidence against the smoker may be circumstantial, or that the number of people who smoke has increased tremendously since the War. Nor are we concerned with the fact whether the match or the cigarette, pipe or cigar, was guilty, or whether the "fag" was a tailor-made one or not, but whether the fires were caused by smokers in the woods; the above we hope will stall off both Gisborne and Hutchinson!

In view of the menace of smokers fires, at out Forest Supervisor meetings this spring the question of a Smokers Code was fully discussed. I use the word advisedly, for it was surely that. Many clauses, slogans, snappy sentences, alliterative and otherwise, were suggested. Votes were taken of the Supervisors, advice and suggestions from the State Foresters and fire associations in both Oregon and Washington were asked. and finally a Code was evolved.

Once this was done, we sent copies to the 700 editors on our mailing list; we followed that up with another shot. The point was emphasized that unless a larger percentage of the public were more careful while smoking in the forests that more closures of the forests would follow. Copies of the Code also went to the hotel men's associations, state motor associations, all city offices in Portland, sportsmen's associations, six transcontinental railroads, cigar, sporting goods and hardware stores. Fourteen broadcasters in D-6 promised to put the Code on the air.

So far we have received what I consider splendid response. The newspapers ran the Code and many had editorials on it; the Oregon state editorial association passed resolutions on it, each of the six railroads distributed it in their smoking cars or diners, stores are showing the large poster in their windows. We are also preparing three portable folding panels for exhibits playing up the Code.

A total of 3,000 large signs (14" x 22") and 20,000 small cards (3½" x 5½") were printed by the Western Forestry & Conservation Association and distributed by this Association, by State Foresters, fire associations, and the Forest Service, and we could have used 20,000 more of the cards.

The aim of the Code was not to ask anything of the smoker but what was possible, reasonable and sensible for him to do; it was not a prohibition, but a request. The Code appeared on page 6 of the Bulletin for August 8.

VISITORS

Office workers in public institutions or in official positions, such as those in the staffs of state colleges, or on county extension forces, or indeed all those officials who meet the public, have a greater need to be helpful and courteous than do those who represent a merely commercial enterprise. The merchant who is surly loses trade; that's his own lookout.

The person who represents the more intangible agency known as "government" in whatever form, -- of nation, state, county, or town--can help his own work and that of the branch he represents if he is pleasant to those he meets. A clerk at the stamp window can make the purchasers go out blessing or cursing the Postoffice Department, by his method of vending his perforated wares.

There's something fine in being able to send an office visitor away feeling as if he had been a guest instead of an intruder. From Extension Service News.

NEW TREE MEASUREMENTS FORM READY

The new Tree Measurements Form 558a has been received from the Government Printing Office and will be made available on requisition through the Supply Depot. Ogden.

This form was especially designed to permit the rapid determination of volume by planimeter. It serves as both field and office sheet and its use saves one-half to two-thirds of the time required for computing.

The form consists primarily of a special graph paper on which the stem measurements are plotted in the field as they are taken. A taper curve is drawn through the points and cubic volumes determined by measuring the area under the curve with a planimeter. Board foot volumes are quickly read from a transparent graph placed over the curve, without reference to log rules, etc. Space is provided on the form for recording all volumes, etc.

ANOTHER VICTIM OF THE MAIL ORDER SCHOOL

A gentleman from Brooksmith, Texas, called at the Gila office several days ago to inquire when the next examination for Forest Ranger was to be held. He claims to have completed a $10.00 correspondence course put out by the Mokane Institute of Denver, Colo., on "How To Be A Forest Ranger" and, as he was tired of farming, desired to change his occupation. According to the gentleman who is 47 years of age, he was informed by the institute that anyone between the ages of 18 and 50 was eligible to take this examination. Upon being informed that the age limit was 35 years, he departed a much wiser but sadder man, with the determination to get back his $10.00

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FOREST PLANTING IN AND AROUND OUR CAMPGROUNDS

By W. B. Greeley

A recent visit to several public campgrounds on the Allegheny National Forest emphasized to me the opportunities we have to kill several birds with one stone by featuring forest planting in the improvement of our public campgrounds, particularly those which are somewhat lacking in beautiful tree growth in the immediate surroundings. This, of course, is not applicable to many campgrounds which are surrounded by attractive forests or, in fact, cleared out from such forest growth. It is, however, applicable in very many instances.

By doing a little planting around and in many of our barer campgrounds, we can:

1. Greatly increase their ultimate attractiveness and their forest setting.

2. Emphasize that it is FOREST recreation rather than AMUSEMENT PARK recreation that we are offering to the public.

3. Interest people in trees and in forestry. This would be accentuated by making a variety of plantations, bringing in as many of the trees native to the region as practicable and even including some exotics.

4. Help to sell forest protection and care with fire with a tremendous punch. It has been demonstrated over and over again that even a little plantation exerts a tremendous psychological effect in making people realize the danger from forest fires. It often has a much more powerful influence in this direction than a much more valuable stand of trees naturally seeded.

The main thing in my mind is the value to the Forest Service and to the public of emphasizing the FOREST element in our recreation, rather than being drawn into any competition with or duplication of the AMUSEMENT PARK type of recreation. The Forest Service can render a very distinctive type of service in emphasizing this element in our outdoor recreation planning. It is directly in accord with our aims and purposes as a whole; it will give our campgrounds a distinctiveness and charm that will be appreciated; it will make a substantial contribution to public education in forestry; and I believe that it will have a very fine influence on our fire prevention efforts and public relations from the standpoint of fire prevention. I have heard many favorable comments in Portland regarding the little beds of forest trees at the Eagle Creek campground; and the Ranger has told me of the innumerable people who are interested in those trees and ask questions about them, right in the heart of the most heavily timbered country in the United States. This interest and value would be enhanced to the degree that attractive natural forest surroundings are lacking.

I feel that this feature of campground improvement is just as worth while as the other improvements which we are installing. I would like to see it aggressively taken up and worked out in accordance with the opportunities and requirements in the various regions. In many instances planting bees can be organized or local plantings by Boy Scouts and the like, so that added local interest will attach to the undertakings. It would be a fine way to celebrate American Forest Week.

THE PROBLEM OF THE JACKSON HOLE ELK

By Will C. Barnes, Washington.

Early in February, 1927, Secretary of War Davis, Chairman of the President's Committee on Outdoor Recreation, designated a Commission representing all agencies directly engaged in handling the Jackson Hole elk herd, as well as other organizations and officials actively interested in their welfare, to meet at Washington to consider the future management of these animals. The Commission included a personal representative appointed by Governor Emerson of Wyoming.

This body convened at Washington early in March. The results of their deliberations have recently been given to the public in a very interesting pamphlet issued by the National Conference on Outdoor Recreation, of which Arthur Ringland, former District Forester at Albuquerque, is the executive secretary.

The personnel of the Commission is as follows: Charles Sheldon, Boone & Crockett Club, Chairman; Wm. C. Deloney, Jackson, Wyo., representing the Governor of Wyo.; Robert R. Miller, Cattleman and banker, Jackson, Wyo.; Irving H. Larom, Dude rancher, Valley, Wyo.; E. A. Goldman, U. S. Biological Survey; Will C. Barnes, U. S. Forest Service; Horace M. Albright, Supt. Yellowstone National Park; F. S. Herbert, U. S. General Land Office; Seth E. Gordon, Executive secretary, Izaak Walton League; O. H. Van Norden, Campfire Club, New York; Kermit Roosevelt, American Game Protective Assn.; Dr. T. S. Palmer, American Society of Mammalogists; and Arthur Ringland, National Conference on Outdoor Recreation.

Each of these persons represented an organization deeply interested in the subject. All are well acquainted with the intricate and perplexing problems surrounding the management of the Yellowstone elk herds as a whole and the Jackson Hole herd in particular. Each came to the conference convinced that there was a crying need for a practical well-thought-out plan for the future handling of this part of the Yellowstone elk.

Fortunately almost coincident with the meeting a count of these animals was furnished. It was made jointly by representatives of the Forest Service, Biological Survey, and the State of Wyoming. Under such supervision this count was accepted as being as nearly correct as was humanly possible.

In order that the reader may grasp the serious situation which this herd constantly faces, the five counts made by competent Government officers are submitted, as follows: 1912 .....13,528; 1916 ..... 19,763; 1921 ..... 9,346; 1925 ..... 19,493; 1927 ..... 19,238.

The counts of 1912 and 1921 followed winters of great severity but by no means unusual. They were seasons such as can be confidently expected about every four or five years. They have come in the past; they will undoubtedly come again in the future. There is but one reason for these changes in the figures, according to the report of the Commission, and that is plain starvation.

The report points to the fact that whenever the herd reaches approximately 20,000 head it seems to stop there. The reasons for this are somewhat obscure and difficult to understand. The Commission finds that:

"Although there is an open season and the State law allows both sexes to be killed, only about 1,000 animals are taken annually by hunters, who may kill but one elk. Losses by predatory animals and tusk hunters are not heavy and have been reduced probably to a minimum."

Based on the counts and the history of the herd the Commission believes a normal maximum of 20,000 can be taken care of year after year with the present hay production on Government-owned hay lands, supplemented by additional purchases of hay from local farmers when the Government's supply runs low. The Commission does not approve the purchase of additional hay lands because it takes away just that mush taxable property from the State. They also recommend that except to fill out certain comparatively small gaps between the Izaak Walton League lands and the government owned lands no new areas of public domain be added to the present refuges in the hole.

The report states that at the present time 2,760 acres of Government owned land, considerable of it hay land, have been set aside by executive proclamation as a refuge and winter hay feeding station for the elk. In addition to this, in 1925 the Izaak Walton League purchased and donated to the Federal Government 1,760 acres of hay-producing land, making a total acreage of over 4,500 acres.

"The forage capacity of the summer ranges for the elk and the factors affecting the life of the herd during their occupancy are favorable and constant", says the report. It is the occasional severe winter that causes all the damage. Additional winter ranges under Government control the Commission finds are not available. "The summer ranges are capable of turning off a relatively unlimited number of elk. The lack of winter range is the crux of the situation."

The report states that "7 pounds of hay per animal per day are required or a total of 4,000 tons for an unusually hard season." Full feeding is not necessary each winter, and the hay produced on the public farms will thus accumulate. Not a pound of hay was fed in 1926 and the losses were almost negligible.

The Commission make recommendations which briefly are as follows:

1. The definite allocation of duties, authority and responsibility of the Forest Service, Biological Survey, and the Wyoming game authorities.

2. A pooling of effort and resources by these agencies.

3. The creation of an advisory board to counsel and assist the foregoing agencies, composed of representatives of several immediately interested bodies, State and Federal.

4. A recommendation that the maximum size of the herd be provisionally fixed at 20,000 head.

5. A cooperative and simultaneous winter count of the Jackson Hole and those other herds in sections of the Yellowstone region which it is believed intermingle more or less on the summer ranges, although widely separated in the winter.

6. A close and continuous of all these herds by competent biologists in order that many now somewhat obscure and peculiar facts connected with the life history of the elk may be better understood and possibly cleared up.

7. The establishment of the present Commission as a continuing body.

8. More flexible State laws so that changes in season, bag limits and kill of sexes may be made quickly if the situation calls for such action.

Altogether the results of this meeting and the formation of a permanent Commission to watch the future handling of the elk is a great step forward. The failure or success of their plans depends largely upon a close and harmonious cooperation with the Wyoming game authorities.

OUR COOPERATORS IN SYSTEMATIC BOTANY

By W. A. Dayton, Washington.

Considerably over a thousand Forest officers are or have been actively interested in range plant collecting and it has been intimated to me that an article on the systematic botanists who identify these National Forest range plant specimens might interest subscribers to the Bulletin.

Dr. Frederick V. Coville, Botanist of the Bureau of Plant Industry and Curator of the U. S. National Herbarium, directs this phase of the work, besides identifying personally the rushes, currants, gooseberries, whortleberries, huckleberries, and many ericaceous plants. Dr. Coville, who was once a great track athlete at Cornell, is easily one of the most versatile men in the Department; he belongs to more different kinds of scientific societies than any other man connected with the Washington Academy of Sciences, and has been an Associate Member of the Society of American Foresters since its organization. He is one of the real fathers of scientific range investigation and management, the joint report (Senate Document 189) in 1905 by Messrs. Potter and Coville on the Grazing Lands of the West having started the ball rolling. By the way, if I am not mistaken, that is the first American work in which classification of range plants into grasses, weeds, and browse is made. Dr. Coville was not much past voting age when he was made Botanist of the Department and, at 26, won international fame by his exhaustive report on the botany of the Death Valley Expedition. The genus, COVILLEA, the common creosote-bush of our Southwestern deserts, commemorates him.

Mr. Ivar Tidestrom of the Bureau of Plant Industry a veteran of the Spanish-American War, is our consulting expert in all matters of plant identification, and he is the only one of these systematists who is paid (two-thirds of the year) from our funds. Mr. Tidestrom was born in Sweden, where he studied botany. He has had a checkered career, and has been a sailor before the mast and a United States cavalryman, serving in the 4th U. S. Cavalry in Arizona from 1888 to 1892. However, just why he ever gave up lucrative occupations like brick-laying and musical composition to accept starvation wages as a botanist deponent saith not. The late Rev. Dr. Edward L. Greene (himself a Civil War veteran) "discovered" Mr. Tidestrom who became his pupil and assistant at the University of California, where Mr. Tidestrom was a classmate or contemporary of Professor Jepson, Dr. Victor Chesnut of poison-plant fame, Elmer Drew, and other botanical celebrities. When Dr. Greene wrote his "Seven Roads to Rome," took orders, and left for the Catholic American University in Washington, Mr. Tidestrom (a very pale blue Presbyterian) loyally came with him and received his degree from that institution. Mr. Tidestrom is a fine botanist of the old school, is a remarkable linguist, widely read, with a splendid background of botanical history in his head. His nomenclature is conservative and sane. Probably no living American, except possibly Dr. Rydberg, is his equal in first-hand familiarity with the flora of the Far West as a whole,- especially the montane regions. His Flora of Utah and Nevada has met with widespread praise, and is the forerunner of what is hoped will be a long series of floras and monographs representing the author's ripe experience and matured judgments. Mr. Tidestrom's modesty is so great that only those who know him very well can fully appreciate his sturdy Americanism, unselfishness, and absolute honesty (the last, alas' none too common among mankind). The western genus TIDESTROMIA perpetuates his name.

Dr. Albert S. Hitchcock, foremost living American authority on grasses (and an able exponent of chess, tennis, and philately). is responsible for the naming of our range grasses, ably assisted by Mrs. Agnes Chase, who is a botanical artist of the first rank and started out as a newspaperwoman. Mrs. Chase is noted for her hospitality and her Washington home, Casa Contenta, has long been a rendezvous for local botanists. Few American botanists have traveled so widely as Professor Hitchcock and Mrs. Chase is not far behind him in this respect. A young man, Mr. Jason Swallen, is now identifying a great many of our Forest Service grasses under Professor Hitchcock and Mrs. Chase's tutelage.

One of the most brilliant minds in the botanical world is that of Paul Carpenter Standley, the rather youthful Assistant Curator of the Division of Plants, U. S. National

Museum. He is justly celebrated for the enormous volume of high-grade work he is able to turn out, is an exceedingly prolific and able writer, and at present is specializing in tropical botany. For many years Mr. Standley identified all our range plants from New Mexico, of the Flora of which State he is joint-author.

Perhaps the most scholarly of the younger set among Washington botanists is a reformed ornithologist, Dr. Sidney F. Blake, with all the classical traditions of the Gray Herbarium at Harvard. He is at home in any field of the botanical world, but his chief (and gratuitous) services to the Forest Service have been with the composites, in which (and in numerous other) groups there is nobody in Washington who can "touch" him.

Dr. William R. Maxon, Associate Curator of the U. S. National Museum, is generally regarded as the foremost living American authority on ferns and all our range material of ferns and fern allies now passes through his hands. Once I asked Dr. Greene to look again at a fern he had identified for us. Dr. Maxon passed by in the corridor. "Mr. Maxon," said Dr. Greene, "come hither, please; we have need of your skill!" "PELLAEA BREWERI!" said Dr. Maxon hardly stopping to look at it. Dr. Greene wrote the name on the folder (as Dr. Maxon passed on) and deleted his own identification, talking to himself as he did so: "That's what the AUTHORITY says, but I doubt it!" But Dr. Maxon was right!!

In matters of willow classification, everybody in the United States defers to Dr. Carleton R. Ball, the genial and competent Cerealist of the Department of Agriculture, with whom SALIX has long been a hobby. All our Forest Service willows are identified by Dr. Ball.

Mr. Willard W. Eggleston, of the Maple Sugar State, left his home in the Green Mountains as an engineer but now spends his time looking for poisonous plants on the National Forests. Since the death of Doctor Sargent he shares the throne with Mr. W. W. Ashe (of Forest Service District 7), as chief authority for that terrible genus, the hawthorns (CRATAEGUS). Mr. Eggleston also identifies a great many of our Forest Service lupines, a genus which the late Dr. Greene once told the writer "nobody can identify!"

Dr. Joseph Nelson Rose, a polished gentleman of the old school, Associate Curator of the U. S. National Museum, and Dr. David Griffiths, a distinguished horticulturist of the Bureau of Plant Industry, are frequently called in to determine Forest Service cacti. The former is well known also as an authority on umbellifers and mimosas and has identified a considerable number of critical specimens in these families for the Service. Incidentally, Dr. Griffiths once had charge of the Santa Rita Range Reserve, before the Service took it over.

Mr. Homer C. Skeels, botanist of the office of Foreign Seed and Plant Introduction, is frequently consulted by Mr. Tidestrom in determining National Forest orchids. Mr. Skeels, a man of the friendly and unassuming type, has several times gone to much pains in getting identified for us miscellaneous, often exotic, out-of-the-beaten-path specimens that find their way here from time to time.

At 27 William Street, New York City, within a stone's throw of the Bowery and the Manhattan terminus of the Brooklyn Bridge, hangs the shingle of an attorney and counselor-at-law, Kenneth K. Mackenzie, who has assumed as a hobby unravelling the complexities of the most difficult (and very possibly the largest) of the genera of plants growing in the green mantle of Mother Earth,- CAREX. Mr. Mackenzie has reviewed the entire Washington office collection of CAREX and, it must be admitted, has raised hob with it -- but he is a man who knows his onions,- I mean sedges. Nearly all our more recent American manuals have their CARICES keyed out by Mr. Mackenzie. The genus CAREX, by the way, seems to have a singular fascination for men of affairs. In the middle 1800's for instance, Stephen Olney, one of the then captains-of-industry, was our foremost American exponent of this largest of the sedge genera.

Dr. Pennell of Pennsylvania has appropriately specialized in the study of

PENTSTEMON (the first "t" of which he significantly omits) and is our chief American authority on the figworts (SCROPHULARIACEAE). He has reviewed probably a thousand sheets of Forest Service material of this family. At present Dr. Pennell presides over the priceless botanical treasures of the Philadelphia Academy of Sciences, where so many of the old American "types" are deposited.

Professor G. K. Merrill, of Rockland, Maine, has identified the lichens for us; Professor R. S. Williams of the New York Botanical Garden, the mosses, and Mrs. Flora W. Patterson of Washington, the fungi which, from time to time, come in National Forest range plant collections. Director Britton of the New York Botanical Garden has identified much of our CYPERUS, ELEOCHARIS, and SCIRPUS material, CYPERACEAE being one of his specialties.

Dr. Per Axel Rydberg of the New York Botanical Garden and Professor B. L. Robinson of Gray Herbarium, Harvard, have helped identify a number of critical range plants for the Service, while Professor J. B. Norton of the Maryland Agricultural College, one of our leading American authorities on spurges and liliaceous plants, has determined numerous puzzling Forest Service plants of those two families.

The biggest potential trouble-maker we have is probably Professor C. Piper Smith of San ~~Diego~~ Jose, California, who has virtually promised the writer to change the name of nearly every lupine we have on our list! But, as most American botanical folk admit they are tyros in this genus alongside of Dr. Smith, we shall just have to steel ourselves for the blow when it falls!

Numerous other experts have been concerned, from time to time, with Forest Service range plant material but, in conclusion, let us mention, and IN MEMORIAM, only three. First, that prince of both field and "closet" botanists, the scholar PAR EXCELLENCE, DR. EDWARD L. GREENE, who was our first Forest Service consulting expert in determining range plants, and who identified more of our plants than anybody else except Mr. Tidestrom. Dr. Greene was a real "character" and deserves a "story" all by himself; he passed away in 1915, the dean of American botanists. Secondly, DR. CHARLES VANCOUVER PIPER, but recently deceased, the foremost American forage plant expert, author of the Flora of Washington (his native State) and numerous other well-known works. Dr. Piper had been a prominent athlete, and in his later days was a familiar figure in golf circles, being a chief authority on golf greens. As a systematist Professor Piper was an authority on borages, on fescues and certain other grasses, and on the flora of the Blue Mountains and of Washington and Oregon generally; as such he determined a large number of critical specimens for us. He was the man who first described Sudan Grass and introduced it to American agriculture. Lastly, let us mention MISS KATHARINE D. KIMBALL who, under the supervision of Professor Hitchcock and Mrs. Chase, identified most of our Forest Service grass material for two years but met an untimely death on the streets of Washington, D. C., in January, 1924.

FROM A RANGER'S DIARY

Both eyes shut up on me this A. M. (Poison Oak). Finally got one open wide enough to take on a little food. The dope I put on my face for the poison oak has nearly ruined me. Head and jaws swelled up like I'd been on green feed all winter, (sick leave eight hours) and yet a guy in Denver in advertising a correspondence course for the position of Forest Ranger states "pleasant work, all you do is hunt, trap and fish." Yea, verily, and there was a man named Ananias.

J. H. in Tonto Bulletin.

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A NEW BASIS FOR GRAZING FEES

By Will C. Barnes, Washington.

The Supervisor of the Crater National Forest has furnished some information on the methods followed by the Indian Service in leasing the grazing privileges on the Klamath Indian Reservation in southeastern Oregon. This reservation covers approximately 1,020,986 acres, of which more than 50 percent is capable of being utilized for grazing purposes.

About five years ago, after a number of experiments in leasing lands to stockmen, The Indian Service inaugurated a new policy which, in place of payment of grazing fees, involved a sharing of the profits on the increased weight of the animals between the owners of the stock and the Indians. In the beginning the Indians took 1/5 of the gain in weight in payment of the grazing fees. This percentage has been steadily increased until for the grazing season of 1927 the owners of the cattle are sharing with the Indians on a 50-50 basis. The following conditions cover the handling of the stock:

1. Stock are weighed in after one day's fill. If they arrive at noon or later the owner gets the balance of that day and the next day for fill before weighing in.

2. Cattle are normally placed in the pasture by the 10th of May or as near that date as possible.

3. Stock are usually weighed out about the first week in October, giving a four and one-half to five months' use of pasture

4. In weighing out, the Indians allow a 4 per cent cut-back on weights as shrinkage allowance for shipping.

The owner of the cattle stands the loss of stock through death or other causes The Indians stand the loss when unable to account for a missing animal. This is done by making an average. If an animal dies at the end of the season the Indians are the losers. The Indians furnish all the salt and look after the stock while in the pastures.

For the past several years the average gain of the steers has been approximately 330 pounds each. In the last two years 1/2 of this gain has been equivalent to a grazing fee of over $10 per head for the season. It has naturally fluctuated with the selling price of the stock. In 1926 they averaged 7-1/4 cents a pound live weight

As a rule the steers weigh out between 1100 and 1250 pounds, and are all taken by buyers from San Francisco, Los Angeles, Portland, and other coast cities.

The provision making the Indians accountable for all missing animals places a responsibility upon them to prevent cattle stealing and keep up the fences.

The whole plan is one radically different from anything heretofore tried on grazing ranges of any extent, and is an interesting development of the fee question.

The method makes the owner of the land a partner in the transaction and as his profits are governed entirely by the increase in weight the natural inference is that there will be under - rather than overstocking.

Figure the income if the 4,500,000 lambs which are either born on our National Forest ranges or come there at an extremely early age and graze absolutely free of charge were handled under a similar plan. Estimating their weight when reaching the Forest at 25 pounds and when leaving it at 65 pounds, the Forest Service, on a basis of 8¢ a pound which is below rather than above the average for the last few years, would receive fully three times as much for the grazing of these lambs as it now receives from all sources of income on the National Forests.

For example, we grazed 206,000 adult sheep on the Targhee Forest in 1926. Which in size and grazing area compares closely with the Klamath Reservation. On a basis of 70 per cent lamb crop, which is a fair average, this would give in round numbers 144,000 lambs grazed free. Allowing a 40 pound gain on each lamb, at 8 cents a pound we have $3.20 for each lamb, or on a 50-50 basis a fee of $1.60 each. The total receipts for the Targhee in 1926 from ALL SOURCES were $66,364.30. If we worked the Klamath system we would have received $230,000 for the lambs alone, which didn't bring us a cent of income.

Mr. Lo seems to be a pretty good business man What? Carry this out for the 4½ million free lambs on all the forests and see where you land.

OLD LION KILLED BY 17 YEAR OLD BOY

While packing salt on the T. G. Walter Range, John Hunt met up with The Deer Killer, according to the Prescott Dells. John turned his pack horse loose, fell in behind Mr. Lion yelling like a Comanchee, and treed the lion in about 200 yards. John killed the lion with one well-aimed shot from his trusty pistol, and found him to be an old veteran, scarred about the face and ears from many battles This makes the third lion captured in this vicinity since Xmas., so we should have 150 more deer here next hunting season.- District 3.

THE LONG AND SHORT OF OUR 1927 TIMBER BUSINESS

By Harry Irion, Washington.

Dryden says that "The tide of business, like the running stream, is sometimes high and sometimes low." Fortunately enough National Forest timber sales since their administration by the Forest Service began have been singularly free from the low adverse currents Dryden had in mind. Year after year they have been favored with a rising level except in a comparatively few instances when the annual volume of business showed an insignificant decline compared with the next preceding year. The unimportance of these minor recessions is evidenced by the fact that an analysis of the figures from 1912 to 1927 show an average annual gain in timber business of over eight per cent compounded. The fiscal year ending last June 30 is one of the few years in which a slight ebb occurred, the two per cent reduction in cut resulting in part at least in placing timber receipts three per cent in the red. In round figures receipts from sales and settlement declined $104,500 compared with the fiscal year 1926, and the cut 22 million board feet. However, if account is taken of the 69 million feet of timber cut under land exchanges, with a total value of more than $171,000, it is obvious that the 1927 timber business slightly exceeded that of 1926 the record year.

Last year seventeen Forests, as against nineteen in 1926, rolled up a total of more than $50,000 each in timber receipts, eleven of which exceeded $100,000 each and two, the Crater and Olympic, $200,000 each. Seven of this group are in District 6, which, by the way, topped all previous individual district records in timber receipts and in the amount and contract value of the cut under sales and settlement.

The complete story is summarized in the tables that follow:

Table 1.-- Amount and contract value of timber cut under commercial and cost sales, and receipts from timber sales and timber settlement during fiscal year ending June 30, 1927.

District	Amt. Cut M feet B.M.	Contract Value	Receipts from Timber Sales and Settlement
1	109,276	$433,854	$402,699.81
2	104,839	312,500	326,464.02
3	56,199	146,115	148,135.81
4	45,753	89,275	86,405.19
5	286,364	842,831	790,871.14
6	447,583	1,155,424	1,103,975.20
7	51,313	230,435	239,949.97 (a)
8	68,950	110,446	149,068.34
Total	1,170,277	3,320,880	3,247,569.48
Decrease compared with 1926	22,240	49,736	104,518.52

(a) Includes $18,872.73 from turpentine sales.

Table 2.--Per cent of increase or decrease in timber receipts and cut during fiscal year 1927 as compared with fiscal year 1926.

District	Per Cent of Gain or Loss in Timber Receipts	Per Cent of Gain or Loss in Timber Cut
1	- 32.9	- 22.5
2	- 10.5	- 18.7
3	+ 17.8	+ 12.3
4	- 42.8	- 41.8
5	- 13.4	- 1.9
6	+ 25.7	+ 12.7
7	+ 6.0	+ 9.9
8	+ 60.4	+ 18.5
All Districts	- 3.1	- 1.9

Table 3.--Forests with timber receipts in excess of $50,000 during the fiscal year 1927, and the leading timber revenue-producing Forest in District 4.

District	Forest	Timber Receipts	Amount Cut M bd. ft.	Contract Value
1	Coeur d'Alene	$167,166.46	29,793	$197,235.46
	Kaniksu	119,565.78	32,308	120,146.07
2	Harney	79,788.52	18,282	73,414.93
3	Coconino	67,043.76	26,130	80,097.35
4	Targhee	31,355.81	16,184	34,559.84
5	Lassen	175,841.18	54,509	191,554.56
	Plumas	198,257.85	74,096	205,938.17
	Sierra	152,808.00	57,553	155,065.00
	Stanislaus	192,990.12	66,953	200,229.21
6	Crater	215,461.16	52,959.67	225,781.89
	Deschutes	138,351.69	51,557.32	162,505.35
	Olympic	287,207.83	131,508.20	273,131.42
	Rainier	50,191.19	18,874.04	43,270.05
	Snoqualmie	94,678.08	52,068.57	130,746.89
	Wallowa	80,797.73	29,789.75	81,029.38
	Whitman	55,801.30	22,107.05	63,129.40
7	Ouachita	105,983.68	15,298.07	123,677.02
8	Tongass	143,310.62	65.581.70	105,736.53
	Total	$2,356,600.76	815,552.37	$2,467,248.52
Per cent of Total for all Forests		72.57	69.69	74.30

SCHOOL FUNDS

By E. A. Sherman.

The Fredericksburg district school in Alpine County, California, furnishes a striking example of the use made of receipts from the National Forests by one of its smaller and poorer mountain counties. Alpine County is by far the smallest county in California in population, having at this time only about 70 voters. It was established in the boom days of placer mining and its population dwindled as the diggings were worked out. The county lies almost entirely within the Mono and Stanislaus National Forests and has within its limits very little taxable land. However, the county 25 percent receipts from the Mono and Stanislaus Forests are sufficient to handle practically all of its school expenses. Fredericksburg District has built a modern two-room school house entirely from its portion of the 25 per cent fund. The school has a concrete foundation, stucco walls, and is roofed with Johns Manville asbestos cement shingles, and from the outside at least is very nearly fireproof.

TOURIST FINED FOR DESTROYING TREES

A party of tourists from Dallas, Texas, were driving along the Mt. Evans

Highway, within the Pike National Forest, last week and stopped to dig up some young trees. They were apprehended by a Denver Mountain Parks officer and turned over to the U. S. Forest Service for prosecution. They pleaded guilty before Justice Leach at Idaho Springs last Saturday and paid a fine of $10 and costs.

The Forest Service is determined to break up the practice of thoughtless or wanton destruction of trees along the scenic highways within the Forests and is vigorously prosecuting every offender caught.- District 2.

SPEAKING OF PRIVATE FORESTRY

By Harry E. Dobbins, Plumas.

"The Spanish Peak Lumber Company's woods practice on their own land is real forestry," remarked Inspector J. A. Fitzwater after having looked over their operation this summer.

This concern is located about six miles west of Quincy, California, on the Plumas National Forest. The mill with a daily capacity of 75 M. is a single band type with a small vertical resaw. The woods operation is about three miles from the mill, and the log supply is transported over a narrow gage railroad by two gas locomotives. Donkey engines and high leads are used exclusively in logging company land. The lumber is conveyed to the company's yard on the mainline railroad five miles away by a unique cable tramway operated by water power.

The first protective measure of importance in their logging practice is the careful location of landings. They do not depend on Mother Nature to put a spar tree where they want it, but select the best landing possible and then cut a good spar tree and raise it on the landing they have picked out. By making the settings smaller and raising their spar trees at the most advatageous points, a great deal of damage in logging is avoided. One setting is always prepared ahead so no time is lost in moving. In preparing a donkey setting a fire trail about ten feet wide is made around it. All brush is cut and piled, and the needles raked from around every tree. An inch pipe line is laid around the setting with hose connections every 200 feet, so any part can readily be reached with water. After the setting is burned the timber is felled, the donkey is moved in and the spar tree raised. The logs on the landing are drawn up around the spar tree and there the remaining brush is piled and burned. While the logging is going on several barrels of water with numerous pails are distributed around the edge of the landing, and a watchman is employed to look for sparks at all times. This is in addition to compliance with the State fire prevention requirements. The use of gas locomotives on their railway eliminates one cause of fire.

After logging, the brush is piled and all snags felled. The brush is then burned in the fall, leaving a clean cut-over area with the fire hazard reduced to a minimum.

Mr. Dan Baldwin, the company's manager, says, "We take every precaution to log the area carefully and later protect it from fire. We leave all young growth up to about 20 inches in diameter, thus leaving a well stocked area, and assuring a future cut without artificial reforestation." The showing on the ground justifies Mr. Baldwin's statement. As a result of their careful protection against fire, this company has not had a fire of any consequence since 1922, and never has a fire been started from their logging operation.

To leave a good stand of young growth by careful logging methods and afterward protect it from fire so that a future timber crop is assured is real forestry.

A study of three cut-over sample acre plots was made to indicate the amount of timber left.

The results follow:

PLOT I

D.B.H.	Yellow Pine	Sugar Pine	White Fir	Douglas Fir	Incense Cedar
Seedlings					
Saplings				2	
4-10"	17	2	2		3
12"	7	2	1		2
14"	3	1			2
16"	5	3	1		
18"	5				3
20"	2		1		1
22"	1		1		1
24"					4

PLOT II

D.B.H.	Yellow Pine	Sugar Pine	White Fir	Douglas Fir	Incense Cedar
Seedlings					
Saplings	33	295	321	3	1286
4-10"	7	21	33		13
12"	2	1	2		1
14"	1	2	1	2	1
16"	1	4			
18"			1		
20"		3	2	2	
22"		1			
24"		2			

PLOT III

D.B.H.	Yellow Pine	Sugar Pine	White Fir	Douglas Fir	Incense Cedar
Seedlings					
Saplings		832	3212	568	109
4-10"		2	29	4	4
12"		2	1		2
14"			3		
16"			4		2
18"		2	1		
20"			2	1	
22"			1		1
24"			1		

SUMMARY

	Y.P.	S.P.	W.F.	D.F.	O.C.	Total Volume
Plot I	3820	420	1350		1860	7450 Bd.Ft
Plot II	300	2600	1020	690	70	4680 " "
Plot III		480	2700	110	470	3700 " "

Note:

Assistance in securing data was given by Mr. George A. Cook, Government scaler at the Spanish Peak Lumber Company.

A RADIO FIRE WARNING

At La Ciotat, Bouches-du-Rhone, France, a new method of fire warnings by use of the radio has recently been demonstrated, according to Bois et Resineux (June 26, 1927).

Radio waves sent out from a lookout tower on the Pic de Bretagne released an alarm bell at La Ciotat and the information about location of the fire, etc., was then given by radio in the regular way.

One of those present at the demonstration expressed the opinion that "thanks to this apparatus, the protection of the forests has made an immense forward step * * *. Proprietors themselves will receive the alarm in the depths of the forest and the guards and turpentine workers, and the operators, who are the victims of the scourge, will be able to fight the fire when it starts instead of being, as now, often the last to know about its existence because of the density of the stand and underbrush, the topography, the direction of the wind, or the fewness of the inhabitants."

The apparatus for sounding the alarm by means of radio waves has been patented by M. Duzea, a professor at the electrical school at Saint-Barnabe. L. C. E.

AN UNSTANDARDIZED CAUSE

By Jno. D. Guthrie, D. 6.

The causes of forest fires are many and varied. Bottles, friction of swaying trees, spontaneous combustion, and other odd and unusual causes pop into the Ranger's standard fire reports now and then. Forest fires, that is standardized fires, must originate either from lightning or from man-made causes. But in this somewhat unusual fire year of 1927, the Umatilla Forest offers a fire which simply doesn't fit into the regular order of things. This fire was started by a meteorite, which is'nt lightning though a celestial visitant, and is certainly none of man's doings. In what column shall this fire cause be set down? During the night of July 23, there fell on the Walla Walla District, some six miles south of Bone Spring, a red-hot meteorite. In falling it struck a sizeable tree, and broke it off some 60 feet above the ground. I say sizeable, for the pole was 28 inches d.o.b. where it was broken off. The intense heat must have been more effective than a lightning bolt, for both the broken top and the stub were burning when Ranger Albert Baker, who is a truthful man, went to the spot on the morning of July 24; not only that, but the shattered parts of the meteorite were still perceptibly warm when he found them. Baker reports that the largest piece of the stone (?) was about the size of a quart can (NOT bottle), of a blue-bray color, somewhat resembling glass which has been heated white and then cooled. Fragments of the meteorite were brought by Baker into Walla Walla from his station at Tollgate.

SAN JUAN AND THE FIRE PROBLEM

San Juan is worshipped by many but is just about to be condemned by the Forest Service. The day of worship is June 24 in the midst of our fire season but fortunately, a day when our entire protective force are on their toes and straining their eagle eyes for smoke columns in the vicinity of San Juan's followers. On this day prayers for rain are offered in various ways, in hopes of saving the scattered fields of maize. The old superstition that fire brings rain is still in the minds of many old timers and some practice this method of sending up their prayer in a column of smoke in the hope of having their prayers answered with heavy rain. A study of the fire records, the Coronado states, indicate quite clearly that for at least two years they have had one of San Juan's disciples living at Mowry on the Patagonia Division of the Coronado. On June 24, 1926, the Mowry Wash Fire occurred. On June 24, 1927, the Mowry Ridge fire occurred. Both in the same section, neither brought rain, both were man-caused and neither investigation resulted in a conviction. The Coronado believe they have this would-be rainmaker pretty well located now and if the old boy doesn't lose faith prior to June 24, 1928, he will be shadowed from about noon on June 23, 1928, until the San Juan exercises are completed on the 24th. They have hopes of clamping the hands of the law down on him with the possibility of teaching him to worship in a more humane, modern manner.- District 3.

NEW FIGURES FROM SWITZERLAND ON FORESTS AND RUN-OFF

From an article by H. Burger, Swiss Forestry Journal, March, 1927.

In two small watersheds in the Canton of Berne, Switzerland, measurements have been taken which indicate very definitely the effect of the forest cover on run-off. These two watersheds are similar in altitude, exposure, slope, and character of soil. They are 3 kilometers distant from each other. One (the Sperbelgraben) is entirely wooded, the other (the Rappengraben) is only 35 per cent wooded. The entirely wooded basin has an area of 56 hectares, the other 70 hectares.

On June 22, 1926, at 5 p. m., a violent storm took place, during the course of which 28 millimeters of rain fell on the wooded basin and 29 millimeters on the other. The maximum flow from the partly forested basin was 1,079 liters a second for each 100 hectares and the crest occurred half an hour after the beginning of the rain. The maximum flow from the completely forested basin was only 240 liters a second and the crest occurred about 5 hours after the storm began.

The total run-off per square kilometer during the period from the beginning of the storm until June 23 at 6 a. m. was 7,696 cubic meters on the partly forested basin and only 4,720 cubic meters on the completely forested basin. By subtracting the amount of normal flow, observed just before the storm in each case, the run-off due entirely to the storm is obtained. This is 6,184 cubic meters for the partly forested basin and 2,970 for the completely forested basin. On the partly forested basin 21 per cent of the storm water ran off, on the completely forested area only 10 per cent. - L.C.E.

RESTING THE RANGE

The Red River Land and Cattle Company are shipping out 3000 head of cattle from Magdalena in August and September, states the Datil Bulletin. It is the Company's plan to rest the VXT range for a year. Mr. Pollock who owns an interest in the company has some range in Arizona that has been rested a year and most of the cattle are being shipped there. The decided improvement of the Arizona range under rest convinced Mr. Pollock that it would be a wise plan to use the same practice on the range here. By renewing the range the company hopes to diminish death loss in the spring and to increase the size of the steers they raise. Inasmuch as the VXT range still has a good sod and the rainfall this summer has been better than for several years past, the relief to the vegetation at this time should be doubly beneficial. - District 3.

Lee C. Daves, a former Forest Service man writes from "Zigida, Republic of Liberia". He states that the job of taking out the kinks in the boundary lines between Liberia and French territory has progressed a full half mile in seven years assuring a life time job for the entire boundary. Daves states that running transit lines in Liberia involves the work of 200 men to progress about a half mile in a day and a cut-out line looks more like a tunnel. After another year in the tropics Daves intends to leave for a place where it doesn't rain- the arid Southwest. - District 3.

Service Bulletin

U. S. FOREST SERVICE

(Contents Confidential)

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SHALL THE NATIONAL FORESTS BE ABOLISHED

(A reply to Gilmore articles in Mining Congress Journal)

By W. B. Greeley,

The Mining Congress Journal has, in five successive issues, presented under the title "Federal Domination Versus State Sovereignty" the views of a contributor who opposes continued national ownership and protection of western forests. Editorially The Journal has stated: "The policy of the federal government in relation to the disposition of public lands in the western states should be no different from that which prevailed while the central states and middle western states were being developed, and where practically all of the original public domain has passed to private ownership and is now subject to state and local taxation." The withholding of areas of public lands from private ownership is regarded by The Journal as discrimination against the western states. "The general question of state rights in the public domain must be determined at an early date in the interest of the western states, as well as the whole country," concludes The Journal editorial.

Advocacy of turning over the present national forests to the states is by no means confined to The Journal. Last winter the state of Wyoming memorialized Congress on the subject of the public lands. That memorial asked Congress to "enact such legislation as will cause the return by the United States to the states comprising said government of all vacant and unappropriated land, together with all natural resources, including water power, power sites, forests, and minerals now held in such by the federal government within the borders of any of the said states." Prior to the receipt of that memorial Congressman Winter, of Wyoming, said on the floor of Congress:

"A crisis is near in regard to our public lands and the destiny of the public land states. * * * A final policy must soon be determined by Congress as to the vital and tremendous question of the ultimate disposition of all the lands not now privately owned, unreserved and reserved, comprising vast bodies of land within 11 states of this Union."

Congressman Winter said further in the same speech:

"Why can not states administer the forest areas within their boundaries as well as the federal government? * * * Our states should have the right to develop the untold mineral resources which undoubtedly lie in the forest areas, as well as the annual growth of timber. * * * It may not be soon, but I look for the day to come when, following the original plan of this Union, pursuing the American form of government, the states will come not only into their jurisdiction as now over the forest lands for purposes of government, the preservation of law and order, the advancement of education, but, as a natural and rightful corollary with that responsibility, into full ownership and control."

Throughout the United States, the interest of the public in forestry, and the recognition of the need to promote reforestation and bring about right methods of land use on the nearly one-fourth of our total land area which has highest value for forest purposes, is more pronounced than ever before. Many of the older states, which have seen their forest resources progressively dissipated under private ownership, and which are now feeling the full force of the economic consequences that follow depletion of the timber resources--the migration of industries and population, the drop in taxable values, the bankruptcy of counties, the decline in rural prosperity, and the incubus of mounting areas of idle lands--are seeking means to bring back the forests. They are faced with very heavy expenditures to remedy the mistakes of the past, and with the prospect of many long years of waiting, at best, before their vanished forest wealth can be restored and the land that has been stripped of its timber can return to productivity. A policy of state and federal purchases of eastern forest land, once in public ownership, to bring it back at heavy public cost to timber growing where private enterprise finds the task too burdensome is being initiated. Yet coincident with all this, a formidable movement is developing for undoing what the nation has undertaken in the West, to prevent a repetition of the mistakes formerly made in the east, with such harmful and painful consequences.

THE REAL ISSUE

It is mistakenly imagined in some quarters that the issue involved is one of federal domination versus state sovereignty; or of a subordination of the interests of the West to those of the East; or of absentee landlordism with Uncle Sam playing the role of landlord; or of the blocking of local sources of public revenue through the withholding of land from taxation. It is none of these. The fundamental question is whether the best interests of the West will be served by maintaining or by abandoning the national forest enterprise.

Much has been made in the series of articles which The Mining Congress Journal has published of the question of the constitutionality of the national forests. Similarly, the writer of the article has challenged the constitutionality of the legislation empowering the Secretary of Agriculture to make rules and regulations having the force and effect of law. All this is misdirected. The Constitution itself makes the Supreme Court its interpreter. The question of the constitutionality of the laws under which the national forests were created and are administered has been fully and repeatedly presented to the Supreme Court. Its rendered decisions have become the law of the land. The proper place for further argument of these questions, if further argument is deemed necessary, is before the courts, which are entirely competent to distinguish between sound and erroneous legal reasoning. The question for the public to decide is whether the national forests are a good thing or a bad thing. If they are a bad thing, it is not necessary to go to the courts in order to get rid of them. Congress has full power. It can repeal or modify its own laws whenever and to the extent that the public welfare requires.

States' rights, for a long time regarded by most people as a dead issue, has of late become again a political shibboleth. We are in a period of almost hysterical reaction against government. "Bureaucracy" has become a catchword. Since, as The Mining Congress Journal has admirably pointed out, the federal executive government is necessarily a government of bureaus and could not function except through these agencies, in current discussion "bureaucracy" generally signifies "federal bureaucracy," and is attacked as inimical both to states' rights and to individual rights. Those who would like to see the national forests abolished, for one reason or another, obviously and naturally suppose that they can make headway by constructing a syllogism like this: Federal bureaucracy is hateful; the national forests are necessarily administered by a federal bureau; therefore the national forests are hateful.

Or like this: The powers of the federal government have been extended to the detriment of the states; the national forests are an extension of the federal power; therefore the national forests should be abolished.

But the vital question is, Should they?

The attention of the whole country is now turned to the problem of flood control on the lower Mississippi. For half a century the people of the southern states adjoining the Mississippi have contended that the problem of flood control should be recognized as national in character and that the task of control should be assumed by the federal government. It has taken the overwhelming calamity of this year's flood to bring general assent to their contention. Will the assumption by the federal government of the task of flood control constitute an encroachment upon states' rights? Will the conduct of the work by a federal bureau or bureaus enlarge the iniquity and increase the hatefulness of federal bureaucracy?

A LITTLE PUBLIC LANDS HISTORY

About 1840 Arkansas and Missouri began to memorialize Congress on the subject of the swamp lands of the public domain lying within their territory. They asked that Congress take measures for the reclamation of these lands by the federal government or else, if the matter were to be left to the states, give them the land as partial compensation for the expense involved. In 1849 a bill was before Congress to grant to Arkansas all the unsold swamp and overflowed land in the state, "to enable her to construct the necessary levees and drains." This bill, broadened to apply to all states containing such lands, was enacted in 1850.

Under the swamp lands grant Arkansas has received over seven and one-half million acres; Louisiana, nearly nine and one-half million acres; Mississippi, three and one-third million acres; Missouri, more than three and one-third million acres. Altogether, under that law of 1850 over 63,000,000 acres of public lands passed to the states. But where are the public works which these lands were intended to provide? And which was the wiser viewpoint--that of 1850, when it was held that the spirit of our institutions and our form of economic organization made it advisable for the federal government to turn over the swamp lands to the states along the lower Mississippi and to tell those states to wrestle with the problem of drainage and flood control themselves, or the viewpoint of the present time that flood control is a national problem?

WHAT BECAME OF FLORIDA'S SWAMP LANDS

Florida received more than 20,000,000 acres of public lands under the swamp lands act. The act itself expressly stipulated that "the proceeds of said lands, whether from sale or by direct appropriation in kind, shall be applied exclusively, as far as necessary, to the reclaiming said lands, by means of levees and drains." According to the Bureau of Corporations of the United States Department of Commerce, prior to January 1, 1911, Florida disposed of nearly 19,000,000 acres of the lands so received. Railroad companies had then received approximately 8,800,000 acres; canal and drainage companies, approximately 2,800,000 acres; a single individual purchaser, 4,000,0000 acres, sold in the 80's at 25 cents an acre with use of the proceeds to meet interest on defaulted railroad bonds guaranteed by the state; 550,000 acres to the state land agents; other persons, 2,700,000 acres.

In 1908 the general council of the trustees of the internal improvement fund of the state of Florida summarized the accomplishment of the state in securing drainage and reclamation through disposal of the swamp lands as (a) approximately 90 miles of unsuccessful drains and canals constructed, and (b) temporary or partial drainage of not exceeding 100,000 acres of land. In the main the swamp lands having valuable stands of timber passed eventually into the hands of large timber companies and are now cut-over lands in need of reforestation, while the state is initiating a new project for financing drainage operations in the Everglades through a large bond issue.

COULD THE PUBLIC LANDS STATES ADMINISTER THE NATIONAL FORESTS?

The public land states can not take over the management of the national forests. They are not equipped to do so. Successful permanent administration of land resources of the kind afforded by the national forests is a most difficult public undertaking. It is a highly technical task, requiring experience, skill, and an organization that will not become the football and can not become the tool of partisan politics. It involves interstate interests in the control of streamflow and the supply of water for irrigation and other purposes. It can be handled far more economically and far more efficiently under a unified policy and a unified organization, making available the best expert knowledge and the resources of the federal government for the solution of the great problems involved, than it could through a multitude of state organizations of divergent policies and each with its own overhead. To break it up would be as unwise as would be a requirement that our great transportation and industrial corporations should be broken up into units independent of each other and each required to operate within the boundaries of a single state only. The American people will not adopt such a course for the national forests.

Twenty years ago, when the national forest system was new and untried, the case was different. It was at that time, and in connection with the national forest policy, that the doctrine of states' rights was reborn. And at that time, too, those who wished the national forest abolished in order that their timber, water-power sites, cattle and sheep ranges, and other resources might become private property urged that the West was being unfairly treated and that its interests were being subordinated to those of the East. Such views, though specious, had a far greater plausibility then than now. For the proof of the pudding is in the eating; and the people of the West now know quite well, through practical experience, that the national forests are not a form of absentee landlordism, or of landlordism of any kind, but that the national forests are a form of public utility, administered primarily for and primarily benefiting most of the interests of local communities and the local public.

THE NATIONAL FORESTS SERVE THE WEST

What does it mean to Maine or Georgia, in comparison with what it means to Wyoming or Utah, that the timber supplies and water resources within the national forests of the public land states are safeguarded for all time? Is it eastern lumbermen who cut the timber, eastern farmers who use the water, eastern wage earners, storekeepers, towns that benefit from the industries supported by the western forests?

Thirteen thousand national forest timber-sale contracts are current. Their manufactured output has easily a value of $30,000,000 a year. Do citizens of New York or Illinois get the money? There are 29,000 grazing permittees. Do they live in the east? Their flocks and herds, it is true, help to feed and clothe the nation, but the profits, the wages, the state and county taxes coming from a national forest livestock industry with an annual production approximating $75,000,000 contributed not to the welfare of Massachusetts or Louisiana but to the welfare of the public land states. Fifteen thousand people have summer home permits in the national forests and nearly as many millions avail themselves of the recreation opportunities which these public forests hold open to all citizens without charge; but they are chiefly western people.

THE EAST HELPS PAY THE BILL

That the East is milking the West through the national forests is a figment of the imagination. The East helps foot the bills; or more accurately, contributes yearly to the national investment which is being made in these resources. It does more. The receipts from the national forests are fairly near, though still below, their normal operating expenses. But because the national forests are not subject to taxation one-fourth of the receipts are returned to the states in which the forests lie, for the benefit of county school and road funds. Thus not only all improvement and development work but more than one-fourth of the actual operating cost is contributed by the general taxpayer. And the general taxpayer must foot the bills for emergency fire fighting, for all investigative work, and for timber planting.

Road construction is the outstanding improvement item. Its community value is almost incalculable. The total expenditure of federal appropriations for road and trail construction or improvement and maintenance, mainly in the public land states, within or on account of the national forests, to date exceeds $61,000,000. The yearly outlay for this purpose alone is equivalent to approximately 6 cents per acre of national forest land. Is it easterners who mainly use these roads?

(To be continued in the October 10 issue)

SERVICE CHANGES

S. T. Dana, Director of the Northeastern Forest Experiment Station, left the Service August 15 to become head of the new School of Forestry and Conservation at Ann Arbor.

After 18 years with the Forest Service in various positions, as Forest Assistant, Assistant Chief of Forest Investigations, Assistant Chief of Research, and finally as Director of the Northeastern Forest Experiment Station, not to mention two years as State Commissioner of Forestry of Maine, Dana goes to his new position with a wonderful background of experience. Michigan can consider herself fortunate to get so able a man.

Dana has been very prominent in the Society of American Foresters since an early date. He was Treasurer of the Society from 1910 to 1913 and a member of the Executive Council from 1913 to 1924. In 1925 he was elected President and served for a period of two years. In 1927 he was again made a member of the Executive Council due to a vacancy created by the election of one of the Council members to the Presidency. He was on the Editorial Board of the American Forestry Association from 1911 to 1915 and has been a member of the Ecological Society, American Association for the Advancement of Science, and other similar scientific organizations for a number of years.

He was the Forest Service representative to the World's Forestry Congress in Rome and delegate of the Department of Agriculture to the International Institute of Agriculture. He is the author of numerous publications, the titles of the more important being: "What the National Forests Mean to the Water User," "Putting Wood Waste to Work," "Reforestation, a Papermill Problem," "Paper Birch in the Northeast," "Forestry and Community Development," "Forest Fire Protection in Maine," "The Rise and Fall of a Lumber Town," "Forest Fires and Recreation," and "Farms, Forests, and Erosion."

The best wishes of the Service go with Mr. Dana in his new undertaking.

Dr. John S. Boyce, Forest Pathologist of the Bureau of Plant Industry and head of the Portland, Ore., office, has been announced as the new Director of the Northeastern Forest Experiment Station to succeed Dana.

Dr. Boyce received his B. S. in 1911 and M. F. in 1912 from the Nebraska Forest School and Ph.D. from Leland Stanford in 1917. Dr. Boyce entered the Forest Service in 1912 as Forest Assistant at the Fort Valley Forest Experiment Station. Shortly afterward he transferred to the Bureau of Plant Industry in the branch of Forest Pathology, here he has remained until the present. For the past 8 years he has been in charge of the Portland, Ore., office and has worked in close cooperation there with the District Forester. He is author of a number of scientific publications, among the more important of which are:

"Dry Rot of Incense Cedar," " Decays and Discolorations of Airplane Wood," "A Study of Decay of Douglas Fir in the Pacific Northwest."

His 15 years' experience in forestry and pathological lines ably fit him for his new position. The Service welcomes him back into the fold.

It is expected that Dr. Boyce will remain in Portland until after the first of the year in order to complete work he now has under way. In the meantime, Mr. Westveld, Associate Silviculturist, will be Acting Director.

IN LESS THAN FIVE YEARS

By E. W. Loveridge, Washington.

The proposal made in the letter of November 2, 1926, which was quoted in full in the Service Bulletin for November 15, that the speed of attack on fires be increased by scattering small crews of way-construction men throughout the danger areas, thus not only building up a network of travel routes, but also providing men,available for catching fires while they are small, has been found to have at least one serious drawback. This is in one of the northwestern districts, where Labor has ideas of its own, the difficulty being to find short-term men, other than students, who are willing to do trail work without someone to cook for them! With only two to three men to the crew this overhead obviously cannot be provided.

Somewhat along the same line has been the difficulty in holding the majority of the guard stations to one man each. This is a practice which has been encouraged for several years past, since under it an equal number of guards can be placed on a greater number of points, thus increasing the possibilities of quicker suppression action, plus some additional detection. The solitude of these one-man stations, however, is often too great for the men assigned to them, for although they may man these points at the beginning of the season, the Supervisor or Ranger is not always sure but that at any time the exodus will start, without warning, and leave a few of the stations unmanned until new guards can be placed.

As sized up by the Supervisor Myrick of the St. Joe, one of the bad fire forests, the problem he has to meet is:

1. The scatteration of his guard force so that with no increase in the number of protection men he will increase the speed of attack. ("Company" for the guards is necessary.)

2. The breaking up of his larger trail gangs into smaller crews so that with no increase in the number of F.R.D. men he will have them more widely distributed for catching fires while small and at the same time will get a large mileage of travel ways built without longer delay. (A cook for each of these crews is necessary.)

Why not, therefore, he asks, reduce each guard station to a one-guard basis and in addition place a one or two-man "permanent" trail crew at each such station, building, and later maintaining, a radiating and subradiating series of ways from it; the crew to serve as companions for the lone guard, who in turn will cook for the laborers?

This Jack Sprat arrangement is the one now being developed by this Supervisor,who if he is able to get his unmounted short-term men to travel two and a half to four miles an hour for the first hour only OVER BUILT ways, will within a few years, and without an increase in funds, approach one-hour control in a country where the objective heretofore has been four hours.

Getting the men "on top" so as to give them a downhill pull for at least a part of the distance to the fires is an important part of the plan whereby this speed for the first hour may be attained.

He realizes, too, that before his organization can become fully effective, the need for new telephone lines, guard cabins, and other improvements must be overcome, and there is only a limited improvement allotment to do it with. Grouped ranger work during the nonfire season and other resourceful moves, all of which make another story, are, however, already making progress on these openings. By taking such steps and, in addition, by going the limit in converting the overhead--alternates, assistant rangers and others formerly held at the ranger stations and in the S.O.S. available for large fires--into more and more guards placed directly up in the front line, he is deliberately changing his organization into one pointed toward catching the fires while they are small -- the millennium. Nor does he feel that this will weaken his resources for any big fires which may occur, since there will be an increase rather than a lessening in the number of men promptly available.

There is, of course, only one test of a fire organization, but whether this one meets it or not will not affect the point of this article. What it is intended to do is to show what one Forest is doing. It also seems to refute in this instance the A to K statement that it takes several years for an idea to be given a full hearing in the Service.

Since writing the above other members of the same District have said that they will not admit that it is impracticable to place guards on solitary stations or to get small way crews to work without cooks, and that such practice is being followed now in some instances, although the spread of men and crews has not generally been made to the thoroughgoing and almost inspiring extent indicated in this particular case. In fact, it is the latter part of this statement which is the real reason for this piece of broadcasting.

LIARS

"We are all liars. We don't mean what we say. We use words to produce desired results, not to express truths. Our word currency is in a bankrupt condition." These are a few of the bristling statements made by Rev. Bernard C. Clausen in a talk at convocation September 29. Dr. Clausen quoted Lincoln as saying that "man did not have a memory that would support a good liar because the things said to-day cannot be exactly remembered to-morrow." - Clipped from New York State College of Forestry News Letter.

SOME WESTERN IMPRESSIONS

By A. B. Hastings, Washington

To visit Missoula and the Idaho white pine country after an absence of nearly 15 years makes one pause and wonder why he ever left District 1. During that brief period some striking changes have taken place. It seemed to the writer as though most all of the 1910 burns except the South slopes were covered with a vigorous growth of conifers. Certainly their improvement was very striking in spite of numerous reburns. The changes in roads were almost beyond belief with an automobile road, good nearly all the way, and a standard gauge railroad in to the once remote "headquarters" of the Clearwater Timber Protective Association.

One sometimes hears of increasing criticism directed at foresters and the Forest Service. The writer feels moved to testify that in his opinion the attitude of the inland Empire public toward the Service is even better today than it was 15 years ago. Not only in public opinion is there indication of betterment. The Weyerhaeuser interests are employing forest engineers to study their operations and to recommend plans of management. Both Idaho and Montana have placed upon private operators the responsibility of slash disposal, with compulsory patrol in Idaho and compulsory suppression in Montana. Furthermore, these States are making decided progress in making these things effective. Timber protective associations are functioning with efficiency, in many cases well up to the U.S.F.S. standard. In South Idaho, as elsewhere, through a common dispatcher, perfect coordination of fire control effort, association and federal, has been secured.

Timber sales on Idaho State land are being handled by the State with success comparable to that attained on the National Forests. State nurseries are springing up in every State and developing in a way which augurs well for the plains region where shelterbelts are the greatest of blessings to the farmer. Insurance companies are banding together on the Coast to harness timber operators to the forest fire prevention wagon, even insisting that they shut down when relative humidity gets below 35°!

Black Hills forestry as practiced by the U. S. Forest Service is being adopted by operators on adjoining private lands in many instances. Thousands of acres of sand hills in Nebraska are green with planted forests.

During the 15-year gap to which the writer has referred one thing had not changed - the spirit of fellowship which gladdens the heart.

SUPERVISORS' TRAINING CAMP SOUTHWESTERN DISTRICT

By Stanley F. Wilson, D. 3.

The first Supervisors' Training Camp in District 3 was held at the Southwestern Forest Experiment Station from August 15 until August 29 this year.

One week was given to Forest Management, five days to Grazing Management, and two days to Operation subjects. "A motor trip over the southern part of the Coconino and Sitgreaves Forests planned for August 30 and 31 had to be called off because of heavy rains which made the roads impassable.

After opening statements by District Forester Pooler and Chief of Operations Calkins, Chief of Forest Management Randles and Director Pearson took over the Forest Management work and conducted it in fine shape. Only research, management plan and appraisal work were handled indoors. In the field marking, scaling, and thinning were actually practiced by the Supervisors. Sample plots were visited, going sales were inspected, and growth and reproduction studied on old sale areas. Fire protection on timber sales and small sale administration were covered by Supervisors Miller and Andrews respectively.

Range Management work was led by Shoemaker, Inspector of Grazing with the assistance of Cooperrider of Grazing Research. Both of them are real teachers. Three days were spent in the field on range inspection, reconnaissance type writeups and gathering data for the preparation of management plans which were later written up in the office. Sample plots and gateless areas were inspected and quadrat work was gone into. In the office Supervisors King, Scott, Swift, Roberts, and Grubb presented papers on various phases of grazing work.

Operation subjects covered in one day in the office pertained mostly to personnel and to plans and other methods of getting work done. Besides the District office force. Supervisors Arthur, Kimball, and Winn led discussions. In the field use of machinery on trail and fire line construction was covered by Mullen of the DO and Supervisor Dwire and the use of powerpumps and hand-sprays by Supervisor Kimball. Road construction and maintenance were to have had prominent places on the two-day trip which had to be abandoned.

The discussions following the presentation of papers were both interesting and instructive. To me one of the high spots of the meeting was the District Forester's statement that inspection can not be standardized, but must, of necessity, be handled differently by different men, and his emphasis on the fact that inspection should be helpful, leaving the field encouraged rather than discouraged.

A number of the Supervisors expressed the opinion that the Training Camp was the best and most instructive Forest Service meeting they had ever attended, and the District Forester is responsible for the statement that he personally learned much more at the camp than in any two weeks period in the whole of his long Service experience.

Service Bulletin

U. S. FOREST SERVICE

(Contents Confidential)

VOL. XI. No. 41. WASHINGTON, D. C. OCTOBER 10, 1927.

SHALL THE NATIONAL FORESTS BE ABOLISHED

By W. B. Greeley

(Continued from October 3 issue)

THE BUREAUCRACY FABLE

It is asserted that the Forest Service is an oppressive and uncontrolled bureaucracy. The assertion is untrue. Had the Forest Service not been responsible to local needs, had it not been doing a work of which the West approved and which the West wanted to have go on, it would have been thrown into the discard long ago---it and the whole National Forest system. It received from Congress broad powers, because in no other way could the task of administration and protection of the vast and varied resources entrusted to it possibly have been performed. Congress could not enact minute laws adapted to fit a vast variety of conditions and contingencies. The National Forests are a great business enterprise; and no great business enterprise can be conducted by legislative fiat and hard and fast prescription. Congress therefore told the Secretary of Agriculture to "make such rules and regulations and establish such service as will insure the objects of such reservations." The Forest Service has accepted the responsibility so conferred by Congress. It has been accountable to the President, to Congress, and to the public for everything that it has done. It is so accountable today. Had it refused to assume the responsibility with which it was entrusted---had it failed to exert itself to the utmost to make the National Forests serve the public welfare in every possible way and in the largest possible degree -- then indeed it would have been guilty of bureaucracy; for instead of carrying out the will and the law of Congress it would have brought the law to naught.

THE INTERESTS OF THE MINING INDUSTRY ADVANCED

The relationship of the National Forest system to the best interests of the mining industry should not be overlooked. From the beginning an important part of the function performed by the National Forests has been to further the interests of that industry. Far from having interfered with mining development, it has rendered and is rendering the industry great service. By maintaining continuous supplies of timber always available for mining needs and by protecting and maintaining water supplies it insures two essentials of mining development and operation. By holding great areas of land in public ownership and open freely to mineral discovery and exploration, and to the operation of the mining laws when valid discoveries of minerals are made it gives the prospector a chance and a field which, if the lands were private property, would be entirely closed to him. On the other hand, by the barriers which it raises against the patenting of fraudulent mining claims it affords very material protection to the industry against one of its worst scourges--the fake mining company organized not to work claims but to fleece investors by selling worthless stock.

In the early days of the National Forests the impression prevailed, both amongst mining men and with a large part of the general public, that the administrative methods of the Forest Service handicapped mining development. The service was widely and severely criticized on the ground that mining claims were examined and reports adverse to the claims were frequently made to the Department of the Interior, which passes on the validity of all claims, by Forest officers incompetent to act as mineral examiners and report correctly whether or not the requirements of the law had been complied with. To provide a means for running down all cases affording a ground for protest that the Forest Service was not giving mining men a fair deal, or was interfering with mineral discovery and mining development, a grievance committee was created by The American Mining Congress. This was done with the full approval of the Forest Service, which promised its hearty cooperation to the end that any cases of incompetence in dealing with claims, or of an antagonistic attitude toward mining interests, or of unnecessary and burdensome regulations might be brought to light and proper measures of correction applied. In order that wherever causes for complaint existed they might be brought before the committee, the widest publicity was given to the fact that the committee had formed and was prepared to function. Practically nothing of importance, however, has ever been presented for the committee to act upon. The Forest Service is today, as always, prepared and anxious to cooperate with mining men, and with their organizations everywhere, in order that the best interest of their great industry and of the public generally may be furthered to the utmost.

DIVIDING THE ENEMY

("However difficult the fire problem may appear when viewed as a whole, its component parts when separated and analyzed are entirely susceptible of being met and conquered."

So says District Forester Show in introducing to the world an unusually interesting and helpful contribution to the literature of forest fire control - the report of the District 5 Board of Fire Review for 1926. And the Board proceeds to conquer some of the elements of the fire problem by the constructive process of giving a graphic picture of good practice in both prevention and suppression. The Service Bulletin will reprint portions of this report in the next three issues. After quoting the figures on man-caused fires for the past four years, the report proceeds:)

The figures speak for themselves - and rather somberly. Real progress has been made in some respects, but the smoker, railroad, camper, and incendiary problems are by no means solved. We are still at the mercy of the weather. What are we going to do about it? That is the question that must engage the attention of every thoughtful Forest officer. The board has no panacea to suggest. There is no true cure-all except complete closure which is not only impracticable but is inconsistent with the purposes for which the National Forests are managed. What is the answer? The board heard answers on every Forest visited, and they were expressed in every review received - education - more and more of it, reasonable restrictions of use, rigidly enforced, and hazard reduction. We may say that these answers are generalities. As words they are just that. Conversion into deeds is what is necessary to get results.

Let us consider our industrial risks for a moment. There are certain legitimate uses of fire in the woods. Logging necessitates the use of tractors, donkey engines, locomotives, blasting, clearing, steam shovels, and perhaps lunch-place fires. Grazing necessitates the use of camp fires by the riders and herders. Power development means blasting, steam shovels, and transmission lines. All such activities involve the use of camps and buildings which are potential fire risks.

AND ALL SUCH ACTIVITIES EMPLOY MEN, MOST OF THEM SMOKERS. Viewed as a District problem, the job combating all these risks appears to be an appalling task. But let us forget the big picture and think of the problem in terms of the Ranger district, taking one class of risk at a time.

A certain Ranger on one of the Forests visited by the Board (let us call him Ranger Smith which is not his name) has a district where grazing is the principal industrial use. He makes it a point to know every one of his permittees and their employees. By the opening of the fire season he has talked to them individually about being careful with fire, suiting the talk to the individual concerned. With an old-timer it may be a discussion of damage showing up as a result of a burn the previous year; with a new-comer it may be an actual lesson in building a safe camp fire. He explains the restriction on smoking and asks for their help in making it effective. In short, he sees that each Forest user realizes the fire danger and enlists his interest and support in prevention. Nor are his efforts confined to pre-season work only. There is a follow-up during the fire season itself. He does not wait for opportunities for these contacts; he definitely projects this work as part of his job.

Does it pay? Ranger Smith had no man-caused fires in his district last year.

Ranger Smith's district is flanked by a highly inflammable belt of grass and chaparral. His neighbors are in no way different from the average foothill rancher. They want to burn, and do burn. But their fires do not enter the Forest. He knows their problems and advises them as to the proper day and time of day to burn, and as to what precautions are necessary to confine the fires to the proper areas. By this sort of personal contact he has gone a long way toward solving the outside burning problem as far as National Forest interests are concerned.

Let us assume that Ranger Smith has timber sales in his district. We may be sure that he is alive to the situation. Alertness is shown in recognizing the risks and hazards, and diligence is pursued in the preventive efforts, both pre-season and follow-up. Hose on donkey engines is HOSE, not rotten rubber tubing with ill-mated couplings and no nozzel. Axes are in the fire tool box, and they are AXES, not blunt cast-offs from the swamping crew. And the foremen and workers know what it is all about, and are, we wager, sold on fire prevention, even to the extent of leaving their pipes in camp. Ranger Smith is also responsible for logging equipment inspection on private land, and his work is just as thorough as on his own timber sales. The fact that it is a "State job" wished upon him is not taken as an excuse for holding it lightly. He is not content with merely going through the motions of an inspection.

Let us assume that a main line railroad crosses the district. Through the efforts of the Supervisor the railroad company clears its right-of-way. Does the Ranger assume that he is out of the picture? Not at all. He manages to get around when the work starts and occasionally during its progress. If necessary he advises the foremen as to how to do the burning safely. Perhaps a rotten log is left beside the track. He recognizes this as one of the worst hazards of all, and prevails upon the crew to remove it from the right-of-way. He makes it a point to talk to the section foremen about discarded ties - where they should be piled and when they should be burned.

Ranger Smith has summer homes and hotels on his district. As with other permittees he enlists the interest and support of this class of user through personal contact and inspection. He sees that garbage is burned in safe places. He annually inspects fireplaces and flues. Hazards are not allowed to accumulate and remain around the dwellings. His dispatcher has standing orders to notify resorts and camps of extra hazardous fire weather, that burning of refuse can be postponed until a safer period. The smoking restrictions are explained to resort managers and notices are posted in suitable places. The rule against smoking in the woods is explained to permittees and guests at every opportunity.

Ranger Smith is not much worried about his industrial fires. He feels that he is in control of the situation. He knows, however, that the tourists, fishermen and hunters coming from the outside are big risks. He realizes that educational work on this class of Forest user must include a lot of general publicity. His contribution is necessarily limited but he more than makes up for the small effort along this line by what he does on the ground. First, he tries to put over some real fire prevention when camp fire permits are issued. Both his own force and his one outside agent are well instructed in this respect, and are frequently inspected. The technical assistant on the Forest prepared a neat sign and Smith has it posted at the agent's place of business. It explains courteously and briefly that the camping privilege carries with it the obligation of care with fire. He has each camp fire permittee register while his permit is being made out. The name and address of the adult members of the party, the destination, and the make and license number of the car are recorded. So far he has had to use improvised registers for this purpose. He and his patrolmen realize the great importance of checking up on all campers visiting their district to see that they have permits and understand the regulations. They do this as a matter of regular course.

In the matter of restrictions Ranger Smith does the best he can. He realizes that the smoking restriction is often violated but he believes that prohibition of smoking in the woods during the fire season is a reasonable requirement to set up and knows from past experience that, despite its drawbacks, it actually reduces the number of smoker fires. The country road and private land problems have perplexed him, since he has no state or county legislation to back him up. He now makes no effort to post the county roads against smoking but uses his signs freely on the adjacent public land, particularly at points where he anticipates travelers may leave the road clearing. As a constructive educational measure he has fireproofed several places along one heavily traveled road and has posted them as safe smoking places. He hopes eventually through education and hazard reduction, and possibly with the aid of county legislation, to do away entirely with the smoker fires resulting from travel on the roads and to reduce steadily the number occuring elsewhere.

Smith and his Supervisor have given a lot of thought to travel restriction. They want to keep it to a minimum, but realize that in extra bad fire periods and in particularly hazardous areas it is a defensive weapon that they must use. Last season they closed one cut-over watershed on Smith's district, allowing no recreational use whatever and confining other travel to legitimate business under special permit. The only road into the area is a protection road, and this was barred during the fire season by a locked gate. This year one additional area will be closed - a ridge covered with a heavy growth of yellow pine reproduction. No form of use whatever will be permitted during the fire season. The boundary will be posted and occasional inspections will be made by the patrolman.

Ranger Smith would like to restrict camping to fire-proofed campgrounds and areas of low hazard in the high country but so far he has not had the time or funds to prepare enough fire-proofed camps to meet the needs of the traveling public, despite the fact that most of his hazard reduction work has been aimed at fires adjacent to the roads. This handicap, however, has not led to a do-nothing attitude. He has attacked the problem from the other end by posting particularly dangerous places against camping.

Both Ranger Smith and his Supervisor realize the value of hazard reduction, not only for prevention but for suppression as well. Smith has a scheme figured out to get some extra funds for this work. He can see that his prevention work with his industrial users is making part of his district relatively safe from man-caused fires. Recent road and trail construction has reduced materially the travel time in going to fires. His second line of defense is carefully organized and some of the stockmen are about as effective as his regular guards. For these reasons he believes that he can rearrange his protective force so as to eliminate one of the fireman positions without lowering the effectiveness of the organization. At least he is eager to try it since the Supervisor has told him he will secure authority to allow him to use the funds to lengthen the period of employment of two of his other guards and thus accomplish some real hazard reduction as well as make the guard jobs more desirable.

Ranger Smith is fortunate in having in the local communities some good material from which to recruit his short-term force. Largely this is due to his own efforts, for in fire matters he has "brought up" many of the young men now serving as guards. It is part of the reward for his public relation efforts with his permittees and other neighbors. The availability of good men, however, does not blind him to the necessity of guard training. Ranger Smith's guards know how to issue camp fire permits because they have been shown, not told, how to do it. The same goes for other contacts with the public and for the appraising and reduction of special hazards. His method of training is essentially a field one, that is, training in the course of doing constructive work. He believes heartly in group meetings if field conditions are simulated, but feels that much of the training value of such meetings is lost without thorough follow-up instruction on real jobs.

(To be continued in October 17 issue)

THE NEW N. F. AREA TABLE

By E. A. Sherman

The new National Forest area table, showing the gross and net area in each National Forest June 30, 1926, is at hand. For the past ten years or more I have checked the new tables immediately as issued with the table of the preceding year as displaced. It is always interesting to see the trend of increase or decrease, progress or stagnation, in the different regions. For a number of years the total net area of National Forest land has steadily gained. This year it had a close squeeze, the total net gain being only 41,214 acres. This, however, is not as bad as it sounds owing to the fact that a considerable acreage was transferred by special acts of Congress to National Parks, merely another form of Government use of Forests. The Forests were also drawn upon to a certain extent in the consummation of State exchanges and consolidations. Net reductions are shown as follows: Alaska, 2,780 acres; California, 193,164 acres; Colorado, 19,399 acres; Nevada, 412 acres; New York, 6,154 acres (this reduction being due to the release of Camp Upton Military Reservation from National Forest status); and South Dakota 1,776 acres. The largest increase, strangely enough, was 65,274 acres in Pennsylvania. Washington was second with a net increase of 63,084 acres, followed by Wyoming with an increase of 42,494 acres; Georgia, 34,967; New Mexico, 27,084; Oregon, 21,852; Arizona, 20,230; and others with smaller amounts. The effect of increased land prices is evidenced by the fact that North Carolina, which for a number of years has figured heavily in the forest purchase column, shows an increase of only 151 acres for the fiscal year.

IMPOUNDING REGULATIONS TO BE TESTED IN COURTS

By Will C. Barnes, Washington

The indications are very good for a judicial determination of the validity of certain of the Secretary's regulations where they appear to conflict with State laws. Apparently the Supreme Court decision which upheld the authority of the Secretary of Agriculture to force citizens of Colorado to keep their stock off a National Forest, although the State law specifically required the fencing of lands against loose stock, would have settled this point. There is possibly some legal difference between the question of a State law requiring lands to be fenced and the question of impounding and disposing of stock in trespass on a National Forest.

On September 12 the Supervisor of the Washakie Forest, who had impounded and sold in accordance with Reg. T-12 a number of horses, the ownership of which was not known, was enjoined from removing them and an action to replevin the horses so impounded and sold was instituted by the supposed owners. Upon the request of the Secretary's office, the Attorney General instructed the United States Attorney for the State of Wyoming to take such steps as seemed necessary to protect the interests of the Government in this matter. Since that time nothing further has been heard from this case.

On the Apache Forest in Arizona the Supervisor impounded a large number of horses, for some of which no bids were secured the horses being left on the hands of the Supervisor. After waiting a reasonable time the animals were destroyed by Forest Ranger Fears in accordance with the regulation. On September 21 local stockmen hired a special attorney to represent them in proceedings to test the authority of the Ranger to kill the horses. Upon request of the Secretary, the Attorney General's office immediately wired instructions to the United States Attorney for the district of Arizona to take all necessary steps to protect the interests of the United States involved in the criminal action against Ranger Fears. Steps will also be taken to have the case transferred to the U. S. Courts. It will probably be several weeks before a decision is secured in the case. In the meantime the court is said to have stated that inasmuch as Fears acted under orders from his superior officers and in compliance with a regulation of the Secretary of Agriculture, the only question for the court to consider is the validity of the regulation.

Between the Washakie case, which appears to be a civil affair, and the Apache case, which is held to be criminal prosecution, we are going to get a pretty broad decision on the validity of this particular regulation and in all probability a further decision as to the power of the Secretary of Agriculture to promulgate regulations of this kind which are more or less in conflict with State laws.

GETTING THE MOST OUT OF THE ROAD AND CAR

By T. W. Norcross, Washington.

During the past summer I motored frequently over a road about 45 miles long. One portion about 15 miles long was particularly tiresome. The road surface was fairly good except for one section; the crown was high but not dangerously so; plenty of curves but only a few sharp ones; frequent hills but none really long or steep; width ample for passing at ordinary running speeds provided both drivers were alert; a fair number of tangents, some 500 feet or so in length. Neither a good nor a bad road but decidely monotonous; the 15 miles seemed like 50. The urge to step on it, but doing this immediately resulted in sharp braking because of curvature, gradient, roughness, or traffic.

By watching my speedometer I found that with driving at a speed of 35 miles per hour whenever I could make it, I had to brake 26 times, and was continually bothered with traffic and the fear of skidding. The passengers had a really uncomfortable trip. The elapsed time was 32 minutes but seemed longer.

I decided to study the road. Traveling at a 30 mile running speed was better than the 35, and the bad features were encountered but to a somewhat less extent. With a 25 mile per hour speed I found that with three exceptions all curves could be safely and comfortably negotiated. I also found that in the remaining sections, this speed was highly satisfactory except for one grade, a stretch of uneven surface and a railroad crossing. I then drove with a 25 mile per hour running speed increasing to 30 only on a very few tangents where the length was considerable, the surface good, and where I knew that the curve at the end was good for 25 m.p.h. At the bad places I reduced to the speed which I previously had found to be safe. The elapsed time was 36 minutes and the average speed 25 m.p.h. I braked 8 times, one of these being due to traffic. The road seemed shorter and the strain on driver and passengers was decidely less. The trip was almost enjoyable, but the elapsed time was four minutes longer than with 35 m.p.h. running speed.

Is the saving of time in a case like this worth the worry, danger and discomfort resulting from overdriving a road? Judging by their travel speed, most of the other drivers seem to think so. But are they right? What is the real value to them of the four minutes? How productively did they utilize this time? Would it not be better to find out the maximum safe driving speed permitted by a road and then keep within that maximum? We would then get more pleasure and comfort out of driving; the operating cost would be reduced; and the number and seriousness of accidents would be decidedly less.

FRANK B. MYERS HAS EVERYTHING NEW

By Jno. D. Guthrie, D. 6

Frank B. Myers resigned from the Umatilla Forest on July 15, 1927, to teach at the New York State School of Forestry. Frank had served in many grades and on several Forests since his entrance on May 14, 1914. A graduate of the Forest School at Syracuse, he entered as a Field Assistant on the Olympic in 1914, becoming a Forest Assistant in 1916, and later a Forest Examiner, Assistant Forester, and Assistant Forest Supervisor.

In 1917, he entered the Army, spent 15 months overseas, and came out a Lieutenant in 114th Field Artillery. He returned in 1920 to the Olympic and in 1924 was transferred to the Snoqualmie, where he remained until May, 1927, being promoted to Assistant Supervisor of the Umatilla. Frank made good in his different jobs and made many friends in D-6, all of whom regretted very much to see him go, and yet were glad that he went to a better position.

Being on the Snoqualmie at the time, he attended the Westside Supervisors' Meeting on that Forest in April, 1927, shortly thereafter he went (driving a new car en route) to the Umatilla, just in time to take in the Eastside Supervisors' meeting on the Whitman. No sooner had he returned from the Whitman meeting and begun getting settled and acquainted with the Umatilla personnel, than he received an unexpected offer to teach at Syracuse. The offer was such an attractive one that he felt he could not well refuse it, much as he regretted leaving his new job on a new Forest. So, just to be still new, he married Miss Pansy Clare Hetherington, of Seattle, and started East with a new wife in his new car, for his new job, seeing a lot of new country en route. His new address is: 134 Buckingham Ave., Syracuse.

INDIAN RELICS FOUND ON SANTA BARBARA FOREST

A rich treasure of Indian relics has been found on the Alexander ranch on the Santa Ynez River two miles above the Santa Ynez Ranger Station.

The Alexander orchard was not doing well and as it was thought that this might be due to hardpan it was decided to blast. While digging the holes the Indian relics were discovered. Among the many things uncovered were crude pestles and mortars made of stone, stone utensils, large and small water urns of very fine pottery, abalone shells, and pieces of flint shaped for knives and spears.

Some of the urns were decorated with Indian markings and have a collar or raised rim at the opening, and are narrowed from the bowl upward. In one of them a piece of cloth made of seawood was found.

Excavations also disclosed Indian bones and skulls in perfect shape. In each grave the first object found was a small slab of stone, four inches in width and 1/4 inch thick, from eight to ten inches long, with Indian markings thereon. These have been identified as headstones or markers.

Excavation was stopped after four or five graves had been uncovered, and David B. Rogers of the Santa Barbara Museum of National History was called in. Mr. Rogers recognized that a real discovery had been made, and stated that the find will result not only in recovering Indian handicraft of priceless value but will also probably open another chapter in the life history of the early inhabitants of this section. - District 5 News Letter.

NAUGHTY ! NAUGHTY !

"Dear Editor, With Sudworth's splendid new Check List on every desk and with the Forester's standing instructions for Forest officers to always use the approved nomenclature for trees, it is a terrible shock to see in the Service Bulletin of September 5 in a list of fourteen trees, ten of them misnamed either as to their common or scientific name - not counting an evident typographical error. How can you call Pseudotsuga taxifolia - Red Pine? - Thorton T. Munger.

If we could see any way to protect Jones in this matter we'd do it. We consider it best to let him explain. Maybe there are others involved in his benightedness. As far as we personally are concerned, Pseudotsuga taxifolia = Douglas Fir. They had quite a bit of it in Colorado where we hail from. - Ed.

ARTIFICIAL RESEEDING ON RANGE LANDS

Artificial reseeding of tame species of grasses on range lands is practical and economical only when the range is of exceptionally high value and there is little hope of natural recovery of the forage within 15 to 20 years, says the Forest Service, United States Department of Agriculture clip sheet. Experiments on depleted range lands by the Forest Service grazing specialists have indicated that this method of bringing back a range area to a productive status requires moisture conditions above the average on western ranges. The creeping grasses such as Kentucky and Canada blue grasses, and smooth brome give the best results under such conditions, but are slow to become established. Bunch grasses, such as timothy or orchard grass, require seed for reproduction, but seed will seldom be matured where the growing season is short. In view of the early establishment after seeding and low cost of seed, the latter grasses are of some value for range reseeding. Sowing should be done at such time that the seasonal or drought will do the minimum injury to young seedlings. Fall sowing usually gives the best results in regions where there is a heavy accumulation of winter snow. Trampling the seed in stock appears to be the most economical and practical method of getting the seed into the ground but grazing thereafter should be deferred until late in the season each year until the crop sown has become well established. - District 3 Daily Bulletin.

AN ENDLESS CHAIN

In 1913 timber on the Rio Pueblo watershed, Carson National Forest (then Santa Fe) was exchanged for lands and timber on the Mt. Sedgwick Division of the Manzano National Forest. In 1925 the timber from the lands secured through the above exchange was in turn exchanged for the Las Trampas Grant lands and timber on the Carson National Forest. A timber sale was recently made for 2,000 M feet of the Las Trampas Grant timber (incidentally the stumpage price is double the value allowed in the exchange) which is available to pay for another exchange. At this rate we may expect to secure a large part of the offered lands in New Mexico with the original capital of approximately 50,000 M feet of timber from the Rio Pueblo Watershed. - District 3 Daily Bulletin.

FOREST SERVICE U S DEPARTMENT OF AGRICULTURE

Service Bulletin

U. S. FOREST SERVICE
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TURNOVER

In the Service Bulletin of Aguust 29 comparative turnover percentages were given for the fiscal year preceding the reclassification of positions and the fiscal year just closed. A glance at the conditions existing in the years preceding the coming of reclassification and then at the salary scale now may help us to appreciate the reason for the excellent showing in the latest figures for most of the classes of our officers and employees and the less favorable showing for the engineering, clerical, and subclerical classes.

Prior to July 1, 1924, nearly 80 per cent of our entire permanent force had been on the statutory roll for thirteen years. During this period promotions on the statutory roll were few and far between, the largest in basic salaries coming on July 1, 1920, when increases were made by Congress in the statutory salaries of Forest Supervisors ranging from $100 to $200 a year, Deputy Supervisors $180 a year, and Rangers $120 a year, the thrifty Solons, however, paring the number of Supervisors and Deputy Supervisors. When the pressure of living costs compelled action by Congress provision was made in 1919 for the so-called "bonus" of $120 a year, which was increased a year later to $240, this temporary increase continuing until positions were reclassified on July 1, 1924.

Notwithstanding the addition of the "bonus", statutory salaries were on a basis below the compensation paid in newer bureaus of the Government and far below the scale of pay received in outside employment. Sixty per cent of our Rangers received less than $1500 per year, with constantly increasing responsibilities. Clerical salaries resulted in a damaging turnover, 35 per cent receiving $1200 or less in annual compensation and 63 per cent less than $1500.

While reclassification has not brought the field and office engineering positions and positions in the clerical and subclerical classes to an attractive basis, comppared with outside employment, as indicated in the turnover figures published in the earlier edition of the Survice Bulletin, the general results of reclassification, followed by the Department's promotion policy since the new system went into effect, have brought the annual turnover to a point that compares favorably with the turnover in comparable positions in the business world. These results are shown in the following comparison of average salaries, by principal classes of employees, for July 1, 1923, a year before our positions were reclassified, and July 1, 1927:

AVERAGE SALARIES, FOREST SERVICE, BY PRINCIPAL CLASSES OF EMPLOYEES, JULY 1, 1923, and JULY 1, 1927.

Class of employees	Year	Average salary	Increase	Percentage of increase
Admin. and technical	1923	$3,397		
(Departmental service)	1927	3,844	$447	13.2
Admin. and technical	1923	3,004		
(District offices)	1927	3,755	751	25.
Admin. and technical	1923	2,645		
(Madison Lab.)	1927	3,052	407	15.4
Forest Supervisors	1923	2,485		
	1927	3,246	761	30.6
Asst. For. Supervisors	1923	2,014		
and Forest technical	1927	2,341	327	16.2
Forest Rangers	1923	1,515		
	1927	1,848	333	22.
Surveyors and	1923	1,873		
Draftsmen	1927	2,143	270	14.4
Clerks	1923	1,384		
	1927	1,756	372	26.9
Subclerical (including	1923	997		
skilled trades)	1927	1,159	162	16.2

Average salary figures represent actual money compensation, account being taken of bonus in 1923 and quarters in both years.

THE OLD ORDER CHANGETH

The following is taken from Ranger Taylor's diary of August 8: "Crossed over to Miami to get my horse shod. Blacksmith said he was too busy on other work to shoe horses and had turned down the shoeing for Miami Copper Company horses, offered to give me the makings, so I shod my own horse. Things have changed--if you'll look around you will miss the hitching post, watering trough, livery stable, blacksmith shop and a few more such things as mark the passing of the horse--proud mothers grab up the baby when you pass and say, "See the man on the horsey"--yes, the horse is passing. District 3 Daily Bulletin.

DIVIDING THE ENEMY

(Cont'd from October 10 issue)

Picture a day on a large fire where the organization is functioning properly.

It really began the night before when the work of the day as shown on the camp progress map had been studied and the line organization developed by the Forest officer in charge. It was then the sector bosses were told their assignments and informed as to the crews which were to be available.

There was no evidence yet of daylight when the crew leaders began rousing out their men. Each man took his bedding to the space roped off for the office of the camp and was given credit when he called his number and turned it in. The men washed at the place provided. The kitchen force was lined behind a rail of poles and by the light of Coleman lanterns was dishing out food to the line of men passing them. After each fire fighter received his plate of food and his cup of coffee he went to one of the fires provided to give him warmth and light, for the night was cold.

The Forest officer in charge and his day sector bosses ate breakfast while discussing the work of the previous night with the officer who had charge of night operations. Sector bosses took advantage of the breakfast period after the consultation with the Chief and his assistant to get their crew leaders together and discussed the work of the day and instructed each as to the crew's equipment. Weeding out of the unfit had been done the night before and each crew boss knew his effectives and had them listed by number.

The Chief then went over the plans

for the day with the camp boss. The latter made notes in the book which he kept on his desk for ready reference. The man in charge of tools and equipment had already arranged axes, shovels, back pack pumps, canteens, files, saws, lanterns, etc., in such manner that no disorder would result when the fire fighters came to get them. The use of a man for this purpose was somewhat new but it was found already that edged tools were being kept in better condition and that crew bosses, because of his records and check, had been watching to see that their men did not lose their equipment.

By this time the glow from pipes and cigarettes over the camp indicated that breakfast was over. The sector boss who had the longest distance to travel called his crew leaders who in turn assembled their men, each group forming in a separate unit to prevent confusion. Crew leader #1 led his men through the alley-way in front of the timekeeper who copied the fire fighters' numbers from the crew leader's list and quickly verified it by having the men reply as their numbers were called. The crew boss then led his men to where tools and equipment were lined out and selected what was needed. The man in charge merely charged to the crew leader the tools and equipment taken by the crew. It was interesting to note that with this crew went a tool grinder and a surplus stock of edged tools, for theirs was largely a chopping job and they were organized and equipped on that basis. They also carried a couple of cans of kerosene and gasoline in mixture for the Hauck torches kept at the head of the line. Similarly, each crew passed timekeeper and equipment station and went out into the darkness to relieve the night men before day light. The Chief, accompanied by his messenger who like himself was mounted, followed closely behind the day shift as it headed out to the lines. It was his plan to make an inspection of the lines with the intention of being on the most dangerous sector at the heat of the day.

After the departure of the day shift and before the arrival of the night shift, the camp presented a busy scene. The cooking force was busy cleaning up and preparing for the night men's breakfast, the timekeeper and his assistant were entering on individual time slips, which were grouped by crew units, the time of departure for the line that morning. Two men were filling canteens to be packed out over the lines on two horses standing by. The camp boss was at his improvised desk preparing with the senior or day cook's help a list of the supplies to be ordered that day. It was noted that on his desk was listed the complete organization for both camp and line, a line-up and time schedule of the transportation used in bringing supplies, etc., to camp, a sketch map of the fire which was kept up to date, a list of men in the organization capable of doing work other than they were engaged upon for use as replacements or to build up new camp or line units, a list of telephone calls, a tablet on which were penciled all essential data, orders, etc., a file on which all bills and orders were kept, and chart recording humidity readings. He knew not only what his own schedule called for but also the working plan for the line organization as well. This knowledge was all on map and paper so that insofar as possible any one coming in and unacquainted with the situation could tell at a glance the disposition of forces, the location and condition of lines, and what forces were in camp should they be needed for emergency. It gave in particular the route the Chief was to take so that he could be reached in case of need with a minimum of difficulty.

Three men were connecting emergency wire to the line running into camp preparatory to extending the communication system to a point near where it was hoped the head of the fire could be stopped and which might have to be used as a subsidiary camp.

By now the night crews were arriving. As each crew came into camp the men under direction of the crew leader deposited their tools with the equipment man who compared what was turned in with his list. The crew was then marched through the alley-way before the timekeeper by the foreman, and proper note made of any stragglers who might have lagged behind to increase their number of hours. Breakfast over, the men were given bedding for which they were duly charged. There appeared to be even a check list by which some record was maintained to prevent any individual securing more than his share of tobacco. This being so, it can be readily imagined that no fire fighter was allowed socks or any other articles for personal use without signing the necessary form.

Each crew leader learned where his men were sleeping and then himself repaired to the section set aside for sleeping quarters for sector bosses and foremen of crews. This arrangement was to make immediate mobilization possible in case of emergency.

While breakfast was being eaten the tools brought in had been sorted and all those needing sharpening and repair set aside for the two men assigned that work. It was noted that one man only was allowed to fill and repair the Coleman lanterns and the carbide lamps used by the night crew. Experience had evidently taught that these necessary adjuncts to fire fighting were only as good as the attention given them.

After the night shift had been cared for the camp settled into its regular routine. It was still early but already lunches were being put up to go out to the lines when the water bucks came back for them in midforenoon. Timekeepers were bringing their time slips and records up to date; a couple of cripples were cleaning up camp, the tool men were busy sharpening axes and otherwise reconditioning tools. The messenger kept at camp with horse saddled assisted the kitchen force or worked elsewhere about camp as needed.

The camp boss after his consultation with the senior cook called up the transfer camp where supplies and equipment were transferred from truck to mule and gave his list of needs for the next day to the man in charge, who placed the order with the merchant with whom previous arrangements had been made. Supplies were purchased on a cost plus ten per cent basis and provisions existed for a return of unused goods still salable. At the transfer camp the receipt of all goods was checked against the orders and bills.

By this time it was possible to get in touch with the Supervisor who was on another big fire then burning on the Forest and he was informed as to the developments of the previous night and the plans for the day. This duty having been performed, inspection of the camp by the camp boss followed, particular attention being given to the latrine and garbage pits.

About 11 a. m. the pack train arrived with supplies and equipment. As the animals were unloaded, the contents of the pack were checked against the transfer camp's list, any exceptions being properly noted. Check telephone calls were made from time to time when the pack train was en route and when there was other travel on the trail, so that breaks in the line could be discovered and repaired promptly.

It is now time to inspect the line organization and its work. The first sector reached, consisting of a line climbing an exceedingly steep ridge, was supposed to be on a patrol basis only, as mopping up had been thorough. There was plenty of evidence to indicate how hot the fight had been to prevent the fire from crossing the ridge. In some places three or four lines showed where it had been necessary to fall back below the top of the ridge because of slop-overs or spot fires. It was also evident that good work had been done in falling snags and mopping up. Apparently, however, the sector boss was taking no chances or else the Chief when he went by suggested it, for the three crews patrolling this particular sector were so organized that a number of men were located on strategic points along the line as lookouts. Where the line flattened out some of the men were on a walking patrol and others were working back in the burned area on spots which had not been put out completely during the organized mopping-up process. Men were so located that all the line and particularly the unburned country adjacent to the line could be seen by some one. Even though this sector was on a patrol basis, two back pack pumps were assigned it for use. It was also noted that there was little ganging up of men and foremen. The sector boss was found near the head of his section of the line inspecting where an old stump had burned and left evidence of the possibility of roots burning beneath the line. The way his men were working clearly indicated that he was keeping in touch with the situation on his sector by being constantly on the move.

Sectors A and B joined where a well defined break occurred on the steep ridge along which the fire line was located. Here the ridge broadened and became much more gentle in slope. The first thing noted was that no gap existed between the two sector organizations. A patrolman of sector A worked from a large outcrop marking the boundary between the two sectors on a beat down into his territory while a patrolman of B sector followed a beat leading in the opposite section. A furrow that started from this point and disappeared in the timber some fifty yards ahead showed, too, where a plow had been successfully used for line construction. It was learned afterwards that with three men chopping ahead of the plow (mattocks also being on hand to grub out roots that might have been troublesome in plowing) with two men cleaning the line behind it, more line was constructed than could have been done by four times as many men with ordinary tools within the same length of time. This line had been fired with Hauck torches, and to all appearances mighty good work at an exceedingly reasonable cost had been done.

Sector B was still in the mopping-up stage. Along the line proper two 10-man crews were on patrol. Working back from the line into the fire were some five 3-man crews mopping up. It was learned that early in the morning the patrol had been on a skeleton basis. Most of the men assigned to the patrol crews had also been mopping up, but as the day advanced these men were brought back to the line to patrol. The mopping-up crews proper were under their own foreman, a man who was known for his fire experience and for the thoroughness with which he cleaned up. Back pack pumps were being used effectively. A boy with a pack horse was packing water from a creek in a near-by canyon. The sector boss said that he had manned two points from which lookout men could see promptly any spot fires that might start from fire blowing over the line. These lookouts were instructed to call to the nearest mopping-up crew in this event. In other words, the mopping-up crews constituted a reserve along a line not considered safe enough for patrol only. He further explained that certain men on patrol had instructions not to leave their beats in the event of a call for help unless specially told to do so by their foreman. This was to prevent draining the line completely and leaving unattended some places still in bad shape.

There was no place unburned along the line where fire might crown and cross over. This fruitful source of disaster had been removed by wise use of Hauck torches during the night and early in the morning. The line was burned up slick and clean.

Sectors B and C joined where the fire dipped down into the head of a broad canyon. Instead of direct attack and cold trailing, the plan of strategy provided for the construction of a line approximately on grade that would meet a line coming from the other direction. The reason for doing this was to take advantage of some bluffs and open country and to eliminate the more costly and difficult line construction that would be necessary if the fire were followed down into the canyon. One man from B and one from C were stationed where the sectors joined. In this way not only contact between the two sectors was insured, but provision was made for a messenger going in either direction if additional help was needed on the fire. Here, too, were the Hauck torches that were to start the backfiring as soon as it became safe in the evening and several back pumps filled for instant use. The sound of chopping could be heard some distance ahead, for a portion of the line ran through an old burn and heavy going was being experienced. It was this point that was occasioning the Chief his greatest worry, for if the fire made a heavy run there was a possibility of it either flanking the crew or going over the line before backfiring could be completed. It was only after long study and a weighing of every factor, including the information he had secured from Weather Bureau reports and his local humidity readings, that he had at least decided upon cutting directly through the old burn rather than going up and around it.

Beyond the old burn and working back towards the bluffs was the plow crew, small in the distance. They were apparently making line at a rapid rate. Within the old burn the sounds of chopping and the sound of metal against rock indicated that this crew also was hard at work. The spirit of competition had been stimulated in the advance construction crews and they were racing for the bluffs which by mutual consent had been considered the goal. It was a tribute to the bosses that the lines were not skimped in the desire to win the race.

Running hand in hand with the line construction was the felling of snags. This work was being done by experienced men equipped with the proper tools for the job.

Where the chopping was going on there was no lack of sharp tools. One man was busy sharpening and because of the surplus stock it was unnecessary for a laborer to wait to have his dulled axe or brush hook put in shape.

Back where sectors B and C joined, the telephone crew was connecting up a Double EE-3 phone. About this same time the Chief and his messenger arrived. They had worked their way around over the route of the line still unconstructed. Before going further it might be well to state that during the lunch period (it was now 2 o'clock) there was no particular ganging up of patrolmen. The crew leaders instead of sitting down with a group of their men to eat, became particularly active in getting over their respective patrol sections to keep their men from bunching up and leaving parts of the line unprotected.

So far the wind had not been bad and while there had been occasional flare-up below in the canyon and a short run here and there, there had been every reason to believe that the day was going to be favorable. It was very hot, however, and the Chief said that at 1 o'clock the humidity had begun to drop rapidly. He kept in his notebook a record of the readings secured from the pocket psychrometer and by taking a sufficient number, he could determine the humidity trend. Now there was sufficient breeze to become audible as it passed through the foliage of the trees and the smoke in the canyon began to flatten out instead of going straight up. The Chief took a reading from his psychrometer, gave a whistle and walked rapidly to where the phone had been connected. The telephone crew knew its business, for a list of telephone calls had been tacked to the tree above the phone. Calling up camp he got hold of the camp boss and told him to instruct crew leaders Brown, Jones, and Wilson of the night shift, with their crews fully equipped, to report to him at the end of the phone line. He requested that lunches be put up for these crews and brought to the line rather than to delay departure by feeding the men at camp. In answer to the anxious inquiry from the camp boss he said that the wind was coming up, that the humidity reading was 10, and that he wanted to back up the force now on the line; that he hoped it would not be necessary to use these crews but that he was not taking any chances. He told the camp boss to be prepared to send a hot supper out to these crews if by any chance they could not be returned to camp by dark.

This was where planning and organization told. Within a few minutes the men had been rounded up, checked out by the timekeeper and sent on their way fully equipped. The Chief was called up and told as soon as they left camp.

In the meantime the wind had been stiffening and the roaring that came up from below indicated that under the smoke which had become too heavy to see through, the fire was beginning to make headway. Efforts to cut the line through were redoubled as the race had apparently now become a three-cornered one. The wind direction was fortunately steady and the Chief had no concern for sectors other than B and C, and of these C was the only one where extreme danger existed.

The wind was coming in gusts now. Near where B and C joined was the best observation point along the line and it was here the Chief made his headquarters for the time as it was also the most dangerous point. He sent his messenger out to the front with a written message informing the boss of Sector C as to where he was and the provisions made to bring in the night crews. He also sent a message to the boss of sector C to come to the end of the sector and to be ready to help.

All necessary moves had now been made and it was merely a matter of waiting on the part of the Chief for the arrival of the forces he had ordered from camp. He had not long to wait, however, for things began to happen fast. A faint yelling from the neighborhood of the bluffs indicated that the plow unit had completed its job. These men could now be counted upon to help hold the line if the fire came up against it. The sector boss of B and the three crews from camp arrived. The mounted messenger returned, saying that the line through the old burn was completed and connected up with the bluffs and that the crew under the sector boss would watch the line from an open space where they would not be in any danger but would be in a position to attack promptly if the fire made a run against the line.

Sparks were now beginning to fall and it was apparent that there was going to be a fight to prevent a break. The Chief took personal charge. He scattered one crew out above the line to watch for and put out spot fires. These men had a number of back pack pumps with them. Three men were started firing along the constructed line but care was taken to keep the fire down to as small a size as was consistent with the purpose. The remainder of the men were lined out to follow this firing and keep it from crossing the line.

Fortunately, the run was not wide and by dint of hard work, what might have been a bad break was prevented. But this would not have been possible had it not been for the forethought that provided for quick mobilization of crews in camp, that provided for extending an emergency line out to the most dangerous portion of the line, and that concentrated men and pack pumps at this point.

After the run had been headed, about 4 p. m., the Chief took another humidity reading. His actions then must have caused some of his men to think that he had lost his mind for he ordered the crews to prepare to backfire Sector C at once. Those who heard him talking to the sector boss while the crew leaders were getting their men lined out understood the reason for his action. The humidity was beginning to rise and unless full advantage was taken of the daylight hours it would be difficult to fire the entire line properly that night. How many breaks have occurred merely because backfiring was delayed until dark with a consequent failure to make a clean burn?

The wind was beginning to fall off somewhat and soon backfiring operations were in full swing. Where the fire did not burn down hill readily the men dropped below and fired short stretches up hill against the line.

After seeing the backfiring off to a good start the Chief returned to the phone and called his night assistant who was still in camp, and in consultation with him outlined plans for the night. It was decided to cut patrol along the lines to a minimum except where backfiring operations were going on, as there was practically no chance of fire going across the line, and to keep on the backfiring jobs enough men to insure the earliest possible completion of this work.

Soon the plans for the night had been completed and noted in the Chief's and assistant's notebooks. The camp boss copied the notes from the assistant's book, as the Chief planned to stay out on sector C to check the progress of the backfiring. The assistant, after the rest of the night men started for the lines, departed to inspect the other sectors and to join the Chief on sector C.

It was significant that the night crews were fed and out of camp in sufficient time to be on their sections of the line an hour before dark.

The picture will end here. It is realized that it may portray an organization more ideal than real. There have been enough well handled fires, however, to prove that effective organization is possible. Advance planning is the essential prerequisite.

(To be concluded in October 24 issue)

PLEASE ACCEPT OUR THANKS

The following is from the San Francisco Chronicle of September 15. Dr. Pardee is a former Governor of California.

From Conservationist's Point of View

Editor The Chronicle--Sir: In regard to your editorial, "Tax-Free Land Burdens unjust to the States":

California's continued prosperity depends fundamentally on the conservation and use of her waters for irrigation, municipal supplies, and electric power. Water falling on bare watersheds not only runs to waste but also causes enormous erosion and flood damages. Southern California's bare watersheds are illustrations.

The National Forests in California, now protected by Uncle Sam, would soon be denuded if turned over to the State or to private control, as is demonstrated by the fact that this State never has shown any disposition to spend the annual millions necessary to protect even the watersheds now under its control, and, with very few exceptions, private enterprises have stripped bare, or are doing so, privately-owned watersheds.

Two million acres, or four per cent, of California's watersheds, that were vegetation-covered in 1850, are now entirely bare; and that bare area is being added to at the yearly rate of 50,000 acres. The taxes that California loses, because Uncle Sam holds and protects the National Forests in this State, are far more than made up by the fact that those forests, so fundamentally necessary, as vegetation-covered watersheds, to our present and future water-insured prosperity, will remain vegetation-covered only as long as Uncle Sam, at great cost to himself and little cost to us, controls and protects them from denudation. We even let Uncle Sam pay a large part of the few thousands that are spent to protect the State-controlled watersheds, "beggers that we are."

GEO. C. PARDEE

CONFERENCE ON COMMERCIAL FORESTRY

A commercial forestry conference has been called by the National Chamber of Commerce to meet at the Congress Hotel, Chicago, November 16 and 17. Representatives of lumbering activities, paper and pulp interests and various industries dependent upon wood as a raw material, foresters and forest land owners, fire insurance companies, scientists and government officials, will devote the two days to the discussion of the possibilities of growing timber as a private commercial enterprise and of the obstacles that prevent the stabilization of the wood-using industries. This is the first attempt of forest owners of the United States to coordinate their efforts in solving their common problems along these lines.

The conference is open to everybody interested in forestry, and a cordial invitation to attend has been extended to all members of the Forest Service.

ARE WE OVERLOOKING A BET?

Why not try out homing pigeons as messengers on forest fires? The smoke chaser could easily carry a pigeon or two with the necessary capsules and message blanks, and upon arrival at an out of the way fire let the pigeon carry the message back to headquarters.

This plan could have been used to advantage on the east slope of San Gorgonio fire and many a weary mile of hiking would have been saved.

The San Bernardino is going to try this. We have four young pigeons that will be trained ready for work by next season. S.A.N.B., District 5 News Letter.

Service Bulletin

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THE EXECUTIVE ASSISTANT AND HIS SUPERVISOR

Some Thoughts at Random

By
"An Old-Timer"

A good many years ago Fred Newclerk, with his "degree" from the Civil Service, but with none too much assurance reported for duty at the office of a Forest Supervisor. Newclerk knew just as little about the Forest Service as Andy Gump knows about real estate development. Meeting the Supervisor, his eye unavoidably took into the picture a desk stacked high with papers. The Supervisor acknowledged the new clerk agreeably enough, to be sure, but with no whole-souled hearty reception. It was a flat, spiritless sort of introduction into Forest Service life. Shortly, in fact rather abruptly, the Supervisor said, "This is your room. Meet George Smith, our clerk who is leaving us next Friday. I will turn you over to him. He knows his stuff and will tell you all about the work. Make yourself at home and don't be afraid to ask questions."

Smith was a genial chap who evidently had done his best but he did not impress Fred Newclerk with the idea that the latter had become a member of an up and coming organization. Newclerk noted rather quickly that Smith's typewriter was dust burdened and the type faces gummed. He noted other indications of like order. Occasionally during the next two or three days the Supervisor dropped into Smith's room. He lacked the air of a man who knew his job. He offered nothing in particular in the way of advice or suggestions. Friday came. Smith left and Newclerk was turned loose on the job. In fact he was not only turned loose but, I would say, turned around, and around and around he went, fighting off as the weeks passed and with weakening efforts the smothering effects of an ever accumulating burden of jobs. He never reached the bottom of the heap on the desk. The stenographer, a rather serious-mined young lady, gave him advice now and then, and pointed out where things might be found in the office. She was willing enough but felt no particular responsibility and was satisfied, as the Supervisor apparently was also, with smudgy letters and haphazard methods. Newclerk continued to rattle around with his job. He acquired certain bad habits even before he was well under way. He asked the Supervisor questions now and then, getting the latter's attention only so far as the particular point immediately in question. The Supervisor seemed to proceed on the theory that since the boy had hired out as a clerk he must be that and therefore left him to plod his own weary way without further thought. Either that or the courage to tell a fellow where he was wrong was lacking. Once in a while Newclerk got a steer from the District Office in the form of an inquiry as to why this or why that had not happened and why report "x-y-z," overdue three weeks, had not been received on time. Newclerk on such occasions was chagrined and once asked the Supervisor "what about getting up a report calendar?" The Supervisor replied, "There is one around here somewhere," and that was the end of it.

The property room -- you know how some are -- well this one was just like that. Everything was in a muddle. Water bags, handles, axes, and fire warnings years old, District maps out-of-date, and publications intimately associated with obsolete manual amendments. All this mess did not appear right to Newclerk but he thought maybe that was the way the boss liked to have it. The boss never once suggested that it be rearranged. It was like his desk from the standpoint of disorder.

The file guides were worn and the folders sagging like the overburdened bag of a rag picker. They were crammed with papers two or three years old and rarely was chronological order adhered to. The boss had remarked over and over how hard up the Forest Service was; therefore, Newclerk did not suggest to him the need for new guides and folders. Said the boss, "I am waiting to go through those drawers and sort out the dead material. Just leave them for a time."

The first Form 44 to trouble Newclerk was that at the end of the fiscal year (we were called upon to submit 44's semiannually in those days), and what a mess was made of it. The boss was away at the time. Before going he gave the clerk no special instructions about the preparation of that tricky sheet. If the matter was given a thought at all, it was taken for granted that all rangers being chronically hard up, as most of us always are, would submit their expense accounts promptly and that they would keep up-to-date their reports to the Supervisor.

When that report reached the District Office, the District Forester must have gone "straight up." You know the rest.

The Supervisor was a good fellow; an easy boss. He seemed afraid to tell a fellow anything. He never had told Newclerk how important it was to have a strangle hold at all times on finances and a double Nelson on them during the last two months of the fiscal year. Why not? Perhaps my readers can figure out an answer. It is beyond me.

At any rate six months on that Forest under that Supervisor left Newclerk "up in the air." He did not realize just why, but he sensed a void somewhere in the administration of that Forest.

Shortly afterward he was transferred. He knew not why, but time and again in the years that have since transpired he has thanked his lucky stars for that move. He went to a Forest coincident to the transfer on that same Forest of a Supervisor of the old school. The new boss not only "knew his stuff" - he acted on the knowledge. Before 10 o'clock in the morning of Newclerk's first day on the job, the Supervisor walked into his room, pulled open a file drawer, ran hurriedly but knowingly through the folders and slammed the drawer shut with the comment, "What a mess! We will have a big piece of work ahead of us getting this thing straightened out." "What?" inquired Newclerk. "Look for yourself," was the reply. "See those messy guides and frayed folders; glimpse the date on the contents of that fat old bag there; stuff 4 years old. Let's requisition a full set of guides and folders and we will get at this pronto; and when we rearrange those files remember NO GEM CLIPS and NO LOOSE SHEETS." Next he walked over to a cupboard where forms were kept and soon pulled out a pad marked Form 26 - revised 1919." "Put these old forms on your desk and use them for scratch paper," and tersely added, "in your notebook put down an item to order 100 'Form 26 - revised 1923' from Supervisor John on the Slimgrouch Forest. I know John has some. Be sure you get the revised forms in the hands of the rangers before the end of this month." Next the Supervisor stepped into the storeroom and soon Newclerk heard rumblings as of distant thunder. To make it short, within a week there were sufficient urgent jobs about that office lined up to keep Newclerk on the jump for the next three months

Newclerk felt a breath of new life. He had come under the influence of leadership for which he had hungered. With new zest and a feeling of certainty he felt confident of "getting somewhere." The Supervisor did not fret nor fume. He simply seemed to have the faculty of ordering his work and of giving his personal attention when and where it was needed. He kept the field force punched up and they liked it. I can tell you that that office force with the Supervisor's help worked some long hours the first two months, but in due time the office took on a spick and span appearance. Newclerk learned more of office management in a few weeks here than he would ever have learned in his first assignment. I remember the report calendar. Did the new boss say, "It is around here some place?" He did not! One of the first things he did was to have Newclerk dig it up. Having produced it, the instruction was, "Make a promise card for every one of these reports. We can't afford to have the District Office crawling our frames for tardy action on this list. Reports that you yourself make, set the promise card 10 days ahead of the due date and don't forget to turn up the card. Reports in which the Rangers share be sure to call for two weeks in advance of the due date, and woe to you if we do not step up about 25 per cent the deficient time record that is charged up against your predecessor on this Forest."

The boss made Newclerk feel not a little bit disgraced if his reports were not correct or if one were tardy. He had an abundant pride in good workmanship and the force in the field and office soon realized that nothing less would be accepted.

Need I repeat, that Supervisor "knew his stuff." His grip on his job imparted confidence to all his subordinates and made every man want to master his own job for the good of the job as a whole. His energy and his force set aflame in Newclerk a spark which carried him along the road to a thoroughly successful and happy career in the Forest Service. Even so, some habits of mind, as the result of his first assignment even yet linger and occasionally cause trouble. He often wonders to what degree the general run of Supervisors realize their influence upon their subordinates or appreciate and grasp their opportunities for developing their men. Certainly such opportunities are golden.

And a final word to the clerks or, as you call them now, Executive Assistants. Do not believe for a moment that you can go forward on the Supervisor's power alone. You will need to keep chugging ahead on all six cylinders with the full charge of the essence of your own efforts. The best of Supervisors cannot make a good Executive Assistant out of one who does not "have the goods" or one who refuses to give such as he has without stint to the welfare of the job. -- From the Eastern District.

ARIZONA'S GAME BRIEF

By Will C. Barnes

The Solicitor's office has received recently a copy of the brief filed by the State of Arizona in the United States District Court for Northern Arizona, at Los Angeles, California.

A review of the document indicates that the State's opposition to the Forest Service plans as affecting the Kaibab deer is based on the broad ground that decisions of United States Courts in game cases have invariably sustained the claim of ownership by the state of the game. They quote the decision of the United States Supreme Court on the unconstitutionality of the migratory bird law because, as the Supreme Court said, "The United States has no ownership in the game birds."

They also quote the decision of the same body in the Light case, in which the statement was made that

> "The federal government has no better rights in said forest land than an ordinary citizen has upon his own private land."

The Supreme Court also said, in another part of the Light decision:

> "The government has with respect to its own land the rights of an ordinary proprietor to maintain its possession and prosecute trespassers. It may deal with such lands precisely as an ordinary individual may deal with his farming property."

The document takes the rather peculiar attitude that the Forest Service does not point out what it is protesting against or for what particular act of injustice it makes complaint against the State or is asking relief from proposed action by the State. The brief claims that the United States Government can not be prosecuted by the State, and hence none of the Government's rights can in any way be injured. To illustrate this particular point the brief states:

> "Bill Jones or John Smith might be prosecuted for killing game on the Kaibab National Forest in violation of the state statute, but the United States will not be injured by any such prosecutions; and there is no direct connection between such prosecutions and complainant's property or its property rights."

The document continues:

> "If the complainant is permitted to carry out its plan, many deer which have never injured or damaged any of complainant's property will be slaughtered, simply because SOME deer have committed injury."

Further on it states:

> "If any particular deer are injuring the property of complainant, it may kill such deer so trespassing."

Evidently the State feels it is the duty of the Forest Service to point out to agents of the State the identical and individual deer which are causing or are likely to cause the damage, and thereupon the State officers may authorize the Forest officers to kill those specific animals but no others.

Again the document asserts another original thought as follows:

> "We do not believe that the complainant is in a position to contend that it has a right to kill the Kaibab deer in defense of the forest, for the reason that Congress has set aside the Kaibab Forest as a National Game Preserve as a feeding ground and park for the particular deer which the government now seeks to slaughter."
>
> "Congress has dedicated the growth upon said game preserve to the feeding of these particular deer, so the government should not be heard to complain because the growth is being used for the very purpose to which it was dedicated by Congress."

The Arizona authorities have always maintained that these deer were, to quote the Governor himself, "as tame as cows in the home pasture." Apparently the deer have changed their habits, because the brief says,

> "All the evidence shows that the deer are in their wild state just as they have been since the beginning of time. The fact that the deer could not be driven from the forest by George McCormick as shown by the complainant's own affidavit is sufficient proof to show that the deer are wild."

Reviewing the entire brief, Solicitor Williams observes that "it is remarkable how readily many decisions of courts lend themselves to a specious argument such as is contained in this document. Our case, "Mr. Williams continues, "presents one requiring the exercise of the nicest and most discriminating analysis of a very big question, and I am almost persuaded that until the case receives the sober, serious and analytical analysis of the Supreme Court we will not have the issues properly decided."

DIVIDING THE ENEMY

(Cont'd. from October 17 issue)

CONCLUSION

The Board has few new recommendations to make. The pressing problem is not so much what to do as it is to carry into execution what we already know. We propose but the following additions to our fire code:

1. We recommend the closing of the hazardous portions of all Forests to smoking during the dangerous fire season as a part of our regular yearly fire control program. The length of the period of closure may vary from year to year, but it will be an exception when some restriction is not justified. We believe that the public should be educated to accept such closure as a customary thing. We believe that the restriction should be so worded as to prohibit smoking on National Forest land except at places of regular habitation, including camps. Any less definite regulation will be ambiguous and difficult to enforce. We cannot close State and County roads to smoking where there are no local laws that apply. The placing of our signs should be governed by this fact. Local legislation providing for smoking restrictions should be sought energetically where needed.

2. We believe that the District Office of Public Relations, assisted by the Forest forces, should lay down a special barrage of publicity on the smoker problem at the beginning of and during the coming fire season.

3. We recommend the registration of camp fire permittees.

4. We recommend that camping parties be required to carry with them at least one shovel and one axe per vehicle or per pack outfit.

5. We realize the difficulty of getting things done, particularly in prevention and pre-suppression lines, when our force is faced with a multitude of activities. We are NOT in favor of a general administrative force divorced from fire control work. We ARE in favor of a limited number of yearlong protective men divorced from other administrative work. This means as a first step the appointment of fire deputies for the most heavily burdened Forests. We believe further that every effort should be made to retain the pick of the qualified short-term men by arranging longer periods of employment - yearlong if necessary - even if there are periods of unproductive employment.

6. We recommend as part of the training program the assignment of Rangers and Deputy Supervisors to going fires on other Forests when this can be done without seriously weakening their own protection organizations.

7. We urge upon the field a clear understanding of responsibility in all phases of fire control work. The District Ranger is an administrative officer charged with the responsibility for his district. When a guard fails the District Ranger fails. The Forest Supervisor is responsible for the proper functioning of his Rangers. When one of them fails it reacts directly to the discredit of the Supervisor. Such responsibility entails CONSTRUCTIVE INSPECTION on the ground. IN SUPPRESSION THIS MEANS INSPECTION ON GOING FIRES. The District Ranger's place during a fire is on the ground, in charge if it is a large one; as an inspector if it is a small one. The Supervisor's place during a large fire is likewise on the line, generally as an inspector, but standing ready to take charge if necessary.

8. A more careful study and analysis of the costs of fires is needed. Careless timekeeping, excess man power and too heavy night patrol are frequent sources of high costs. Failure to make arrangements in advance for the purchase of fire supplies on a cost plus basis from wholesalers who will give us the best rates with special advance deals on transportation, are mentioned again as holding out decided possibilities in connection with keeping our costs within reason.

ON THE USE OF THE CHECK - LIST

By Robert D. Maclay, Olympic

The undersigned article, "The Ashley Arbroretum", in the September 5, 1927, issue of the Service Bulletin, caught my eye when the name "Red Pine" was applied to Pseudotsuga taxifolia. Since I am a member of the Olympic National Forest, home of the finest Douglas firs that grow, the name "Red Pine" seemed out of place in association with Pseudotsuga taxifolia; it jarred.

Referring to Sudworth, I find while Pseudotsuga taxifolia may be locally called "Red Pine" in Utah, that "Douglas Fir" is the correct name. After looking over the one-time familiar texts of Sudworth and Sargent, I thought that I would check up on the other technical names given in this article. I failed to find Juniperus Sibirica in Sudworth or Sargent, but Sudworth calls Dwarf Juniper, Juniperus communis. There is a J. Siberica, of course, but it isn't found (naturally) in Utah. Then the Check-List says Utah Juniper is the accepted name for J. utahensis, and Rocky Mt. Red Cedar for J. scopulorum. The aspen mentioned is no doubt Populus tremuloides variety aurea. Picea pungens, Sudworth gives as Blue Spruce (omitting the Colorado), Pinus edulis as simply Pinon and Acer glabrum, as Dwarf Maple.

There are too many "anns" in angustifolia, but I won't hold that against the unknown author.

GAME CONSERVATIONIST

Commanding Officer, 10th Cavalry, Fort Huachuca is a game conservationist. A short time ago, Colonel Scherer by observing what was "on ice" at the Fort Huachuca ice plant learned of the slaughter of deer by officers and soldiers on the Fort Huachuca Military Reservation. He immediately issued an order prohibiting hunting and designated the Military Reservation a game refuge. Under the existing agreement between the Secretary of Agriculture and the Secretary of War, the Post Commander has sole jurisdiction in matters pertaining to birds, fish, and game on the Reservation. The territory adjacent to the Military Reservation is a state game refuge and we heartily approve Colonel Scherer's annexation. The "colored boys" report that violation of the C.O.'s order draws six months in the guard house. (From the Coronado Bulletin, D-3)

WOOD MAY BE LUXURY

Forest fires caused by carlessness may make kindling wood a luxury 100 years from now.

Last year Class I railroads expended $186,291,000 for the direct purchase of about 15 per cent of the total timber cut of the United States. Indirect purchases brought the railroads' 1926 consumption of forest products up to approximately 25 per cent of the country's entire output.

Because of these huge expenditures the railroads regard fire prevention as of utmost importance. But the average citizen should be no less concerned, for if forest fires continue on the present scale wood will eventually become so scarce as to render almost prohibitive many commonplace articles now regarded as necessities.

(The above is taken from the menu card of the Southern Pacific Overland Limited and is stuck plumb in the middle of the menu. Ed Munns sent it in to us. Nice P. R! - Ed.)

"WHY I BELIEVE IN FIRE PREVENTION"

Excerpts from an Essay of an Indian boy at Fort Bidwell, Calif.

The forest is the best thing in the world, because of its use as fuel, heat, and shelter so the trees are the important thing of all.

Some years ago they establish a man who ride through the forest, and see if it need cleaning, the limbs thats lying around to be pick up he is called the "Forest ranger."

A man who is called the Forest ranger is to look around the hills, mountains, where the fire might start, he is to see if he can get help from the nearest station to see if he can get people to help him by telephoning when a fire start.

Some men who help with the Forest supervisor are strong, brave, and honest man.

Most of the Forest rangers are strong enough to lick a man who is trying to start something.

So many forest has been destroyed in France during the worlds war, they set law to every person for, to protect the trees every man go out pick up the broken limbs to use as heat, and fuel after the storm.

I believe in few more years the United States has to do the same because so many forest fires.

When building a campfire build it small, try to build fire closest to water, so if a fire break away just pour water on it try to stop it.

A man suppose to know how to build a camp fire? Where to build it? How to build it? And how to prevent the spreadking fire?

Fire should be put out well before leaving?

Always look for a clean place to build a camp fire, behind rock, or bushes, so it wouldn't start on the trees and bushes near by.

Many times a man are so excited about getting out fishing, or hunting, often left his camp fire burning, and if the should ever get started to burn brush It will cost more money than death.

It cost more money to have a whole lots of trees to be destroy than to prevent the spread of it, and keep the flowers, trees, and streams look pretty.

IMPORTANT DECISION

On January 17, the U. S. Circuit Court of Appeals for the 8th circuit, rendered a decision which is of a good deal of importance to the Forest Service. The Court held that:

> "However highly prized may be the piscatorial privileges claimed by the defendant, we find nothing in the Act of March 3, 1891, granting to the defendant a limited fee in the land surrounding the lake for such purposes."

In other words, the Court passes on a question which has been much mooted in the Forest Service for a good many years and that is, whether a reservoir right-of-way acquired under the Act of March 3, 1891, for irrigation purposes, where a natural lake is involved, gives the grantee such control over the reservoir and lake as will permit him to exclude the public from fishing therein. It is understood that the decision above mentioned which reverses the U. S. District Court for Colorado in the same case, holds that the public may not be excluded from such a reservoir and that the grantee, in so far as fishing is concerned, has only the same rights which are accorded to other citizens of the United States to use the lake for fishing.

ACQUISITION OF LANDS IN THE LAKE STATES

On September 6, the purchase, under the provisions of the Clarke-McNary Act, from the Duluth & Iron Range Railroad Company of 1362 acres of land, lying within the Superior purchase unit in Minnesota, was consummated by the payment of $1566. This is the first purchase by the Government of land lying within the Superior purchase unit which has been finally consummated. It is expected that payment will be made at an early date in several other purchase cases involving somewhat large areas of lands lying within the Superior and Tawas purchase units. -J.E.B.

RANGER HERRIG RETIRES

By J. E. Ryan, Blackfeet

The retirement of Ranger Fred Herrig closes a record of twenty-six years continuous service as a Forest Ranger on the Blackfeet National Forest.

Mr. Herrig was born in Alsace Lorraine on December 27, 1860, emigrating to the United States when he was fifteen years of age. He first came to Montana in 1878, and for several years followed trapping and packing in various parts of Montana and British Columbia. From 1883 to 1887 he was employed as a cowpuncher by Theodore Roosevelt at the "Elkhorn Ranch" on the Little Missouri River. Fred accompained Teddy Roosevelt on a number of famous hunting expeditions, and later enlisted and served in Cuba with Roosevelt's "Rough Riders".

Ranger Herrig received his first appointment in the Forest Service in June 1900, and his original district embraced an area equivalent in size to the present Blackfeet National Forest. Ranger Herrig was assigned to the Ant Flat Ranger Station for twenty-four years, which is believed to be a Service record for continuous duty at one ranger station.

REPRODUCTION OF OAK

Oak, in the Southwest, reproduces largely from sprouts. The number of sprouts, if any, and their vigor depend on the species, age, time of year of cutting, etc. Vigorous sprouting is desired where sprouting is depended upon to replace cut-over stands. It is undesirable where the oak is cut along trails. Observations by several Forest officers in the District seem to indicate-

1. Cutting during May and June invariably results in vigorous sprouts. Therefore this seems to be the best time for cutting on sale areas but conflicts with the trail building activity during the fire season.

2. Cutting in late winter and spring through June results in less vigorous but satisfactory sprouting.

3. Cutting in the fall and early winter results in little or no sprouting, especially in over-mature stands.

4. Under similar conditions of cutting trees under 10" D.B.H. sprout more vigorously than trees above this diameter.

5. Grazing is injurious to sprout reproduction, the extent of the injury being dependent on the degree of stocking and the amount and character of other forage present. Experiments are also being conducted to determine the effect of piling brush around stumps to protect sprout growth from grazing. District 3.

ANOTHER ENEMY

Since keeping fire out of the forest is only a means, the end being production of timber, getting full return from otherwise idle land, protecting game and birds, and enhancing the scenic values, is it not time much more stress was laid on growing timber than the one activity of fire fighting.

Fire is the spectacular enemy, so it is played up strongly in press and on poster. But insects do damage as well as fire. Birds are the great destroyers of insects. Why not stress keeping down insects especially by increasing the number of birds. Is not the more effective procedure in fighting forest enemies to bring to the foreground the great value of the forest. When people realize the worth of the forest to them, they will adopt procedure to combat its enemies. H.N.W.

Service Bulletin

U.S. FOREST SERVICE

(Contents Confidential)

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WHAT FORESTRY MEANS TO THE RAILROADS

From an Address by J. C. Williams, Manager, Development Service, Southern Railway, at the Southern Forestry Congress.

So manifold are the uses of wood and its derivatives that every man, woman and child and every industry in the United States is interested in the conservation and perpetuation of American forests.

American railroads are interested in the continued growing of trees as directly as are the lumber industry and all of the wood-using industries. A very large proportion of their revenues are derived from carrying forest products and manufactured goods which use forest products as raw materials. They are among the largest users of forest products and their annual purchases of ties, bridge timbers, lumber for car and building construction, and many other purposes absorb twenty-seven per cent of the total annual lumber cut of the United States.

During the calendar year 1923, the latest for which complete figures are available, the class 1 roads of the United States carried 227,570,867 tons of forest products, on which they earned $419,807,000. In that year products of forests made up 9.5 per cent of the total tonnage of the class 1 roads and contributed 9.1 per cent of their total freight revenues. These figures cover only forest products in their primary forms and do not include the tonnage and revenues contributed by the long list of manufactured commodities in which wood is used alone or in combination with other materials.

It is manifestly to the interest of the railroads that revenues from forest products and their derivatives shall be preserved It is no less to their interest that the prices of the ties, timber, and lumber which they buy shall not be forced to exorbitant levels by a constantly diminishing supply.

If railroad revenues are to be maintained; if the great variety of industries using wood and chemical derivatives of wood are to be prosperous, and if lumber consumers are to buy at moderate prices, there is no time to be lost in bringing about the adoption of policies of forest and woodland management under which the annual production of wood will at least equal the annual cut and destruction of fires, insects, and other natural causes.

We shall not have a treeless country in 1964 or at any other time in the future. The ever-increasing scarcity and advancing prices of all kinds of forest products are already restricting consumption and forcing a constantly increasing use of substitutes. Values of forest products have already reached a level at which the growing of trees is one of the most profitable uses to which certain types of land can be put. This has long been known by students of forestry but it has only been within recent years that it has been learned by some private land owners. Others have not yet learned it. National, State, and other public forests have done much to prove that trees are profitable crops. State plantings in Pennsylvania through a series of years have demonstrated this so clearly that private individuals are now planting more than the State. New York, awakening to a realization that the primeval forests of the Adirondacks are rapidly disappearing, has gone into State forestry on an extensive scale, the 1926 program calling for planting 37,000,000 trees. At Petersham, Massachusetts, there is a notable demonstration that tree growing is profitable, even on relatively small areas, and in that northern climate where tree growth is slower than in the South. In the South, longer growing seasons make tree growth more rapid and the profits of forestry correspondingly greater than in the North.

It is clearly to the public interest that there shall be neither a decrease in wood consumption nor any substantial further increase in the prices of wood products. To bring about stabilization of consumption and prices at or near the present levels will require the cutting down of the present enormous losses by fire and the very prompt increase of the annual growth to the level of the annual cut.

Great as has been the stimulation of public interest in the perpetuation of the wood supply of the United States, the immediate increase of annual growth to the amount of annual drain cannot be hoped for, and reforestation bids fair to be a slow process until revised tax laws shall make the growing of trees more profitable. The outlook, then, for some years to come, would seem to be a continuation of the upward trend of prices of all forest products, automatically restricting consumption and encouraging the growing of trees.

The needs of the future are being taken care of in some measure by National, State, and other public forests, but these will be utterly inadequate unless supplemented by returning to the growing of trees millions of acres of cut-over lands under private ownership on which, under proper policies of fire prevention and of timberland taxation, trees may be grown more profitably than other crops. Intelligent taxation is nearly, or quite, as important as fire protection. It is apparent that lands from which a crop is harvested once in every 25 to 40, or even 60, years cannot stand the same system of taxation that is applied to lands from which crops are harvested annually. Eleven of the States have recognized this and have substituted a yield tax, paid when the timber is cut, for all taxes on growing timber. This is manifestly the correct policy and should apply, not only to the large holdings of the lumber companies, but also to farm woodlands. There are on most farms areas that the farmer can more profitably devote to tree growing than to other uses, especially if encouraged to do so by proper adjustment of his taxes. While the individual farm woodlot cannot go far toward supplying the timber needs of the country, when it is multiplied by millions it becomes an important factor, and, under proper encouragement, can be made to supply an increasing proportion of the forest product demand.

(We thought you might like to learn what a cold-blooded corporation thinks of forestry, hence Mr. William's address before the Southern Forestry Congress. The rest of this address will appear in the November 7 issue. - Ed.)

BEAR ATTACKS FOREST OFFICER

"There were no eye witnesses to this accident. On August 19 George K. Oliver was on his way from Pot Mountain to a fire on Pete Ott Creek under my instructions. When about 4 miles on his way a bear was encountered. The bear showed signs of anger and Oliver sought refuge in a tree, but the bear followed and did not give up the chase until struck on the nose with a canteen of water. She then descended to the ground, called her cubs from another tree and disappeared in some brush. Oliver, thinking she had left the scene, after half an hour also descended and began looking for his smokechaser equipment which he had discarded rather hurriedly. Before the equipment was all assembled, the bear made a counter attack, but Oliver outdistanced the bear and this time sought refuge in a cabin some 200 yards away where he remained for one and one half hours, to give the bear plenty of time to get out of his way. Again returning for his equipment, the bear sprang at him from close range behind some bushes. When Oliver attempted another retreat the bear struck him on the left leg tearing away his pants and underwear and leaving slight claw marks on his skin. Oliver lost his footing and when he fell the bear sprang upon him. While down Oliver struck the bear with a left hook to the chin, kicked her in the belly with his calked shoe and at the same time pulled his hunting knife with his right hand, but doesn't remember having used the knife as the bear gave him a blow in the ribs which put him to sleep. Oliver only remembers being struck twice but swelling and bruises on the left shoulder showed that he was struck after being knocked out. When Oliver regained consciousness the bear had gone and Oliver returned to Pot Mountain late that evening, and was brought to the Bungalow Ranger Station August 20 for examination by a physician as he had raised considerable blood from his lungs. A physician was called and examined Oliver late the evening of August 20. This information was given me by Oliver and a close examination of the scene confirmed his statement. The tracks of both Oliver and the bear were found in the tree. Considerable blood was found on the bushes of which Oliver knew nothing.

(Signed: L. R. Vanairsdale)"

Form CA-1 contained the following succinct statements by Oliver:

"THE INJURY OCCURRED AT: near Mush Camp Cabin on Clearwater National Forest in the following manner - while going from Pot Mountain to a fire on Pete Ott Creek a female bear and two cubs were encountered in the trail.

"CAUSE OF INJURY: an enraged mama bear refusing to give up the trail, in a third attempt to gain passage to the fire.

"NATURE OF INJURY: slapped to sleep and severe bruises on chest and left shoulder. Blood was raised from the lungs for several hours after regaining consciousness."

WHY THE BANK?

By M. S. Wright, Washington.

The Office of Engineering in Washington started out last Spring to find out just what effect "banking" or elevating the outer edge of a road on a curve had on the speed it was possible to secure in a car on any curve of a given radius. As it was impossible to go out and actually find the many combinations desirable, a set of four test curves were constructed in a well adapted location on the Natural Bridge Forest in Virginia. It was decided to build 30, 50, 70 and 100 foot radius curves; all four curves on level grades and half a circle in length. A plan of these curves looks like a side view of a cone of ice cream, the 100 foot curve being on the outside or top and the other curves within, and all coming into a tangent at the points where the half curves end. For comparative purposes it was essential that these curves be identical so far as surface, width, grade, and length were concerned.

After being built to a width of 12 feet with a flat cross-section and well rolled, three cars, a Studebaker touring car, a White truck, and a 1926 Ford roadster equipped with light truck body, were driven both ways, as fast as it was safely possible. Flags were erected at the ends of each curve and also at the half way point. One person stood at the center of the half circle and timed each car separately for the first and second half. Mr. Dort, District Engineer for District 7, drove his Studebaker, Mr. Glass, road foreman, drove the White truck, while I negotiated the Ford. These cars were carefully timed with two stop watches reading to tenths of a second. Sufficient test runs were made to determine the fastest non-skid speed for each individual car. After these had been determined, a tractor and grader were used to tear up the surface and reshape the curves on a bank or inslope of one-half inch for every foot of road width; for a 12 foot width this meant that the outer edge of the road was 6 inches higher than the inner edge. After these were rolled similar tests were again made with the three cars. This process was repeated for a 1, 1½ and 2 inch banks and then the sides of all the curves were torn down and the curves, which incidentally were all on fills, were reduced to 9 foot widths. A complete set of all the tests previously made for the 12 foot width was repeated for this lesser width.

From the data thus secured, it was possible to prepare graphs which showed the attainable speed on all curves up to 100 feet radius for different cars for all curves banked from level to 2 inches per foot of width, for two different road widths.

Contrary to general opinion it was found that the Ford negotiated the curves at practically the same speed as the Studebaker. This seemed to prove that the effect of centrifugal motion more than offset the weight of the heavier, and larger car.

BIOLOGY OF THE FOREST AND RANGE

From an article in the New York Times of September 23 quoting Dr. Walter P. Taylor of the Biological Survey we have made the following excerpts:

"The beneficent role of insectivorous birds in farming districts has been emphasized by the thorough studies of the subject made by the Biological Survey. This function of birds is widely recognized. That birds exercise a similarly beneficial service to forest trees, browse, and even forage grasses is sometimes not kept in mind. Other possible benefits by animals include the cultivation of the soil of range and forest by earthworms and burrowing rodents, the caching and planting by birds and mammals of the seeds of trees and other plants, with consequent assistance to the maintenance and even extension of the vegetation, the nitrifying of the soil through the wastes and remains of the animal body, the activity of predatory insects, amphibians, reptiles, birds, and mammals in destroying various other species of insects, rodents, or other forms of animals that prey on vegetation, and the serving as food for game fishes or other valuable species.

"Even moderate use by man of the timber and forage is almost sure to upset the balance between the plants and animals and their environment on forest and range lands. Clear cutting, overgrazing, and burning bring about profound and often catastrophic changes, involving not only the physical but also the biotic factors of site. The removal of the plant cover promotes destructive erosion, injures the watershed value of an area, affects for the worse the welfare of near-by farming sections and cities and often promotes disastrous floods.

"As Jones has pointed out, 'It was destructive erosion and not war that destroyed Assyria and Babylonia.' Successful natural reproduction of forest, reforestation by either seeding or planting, maintenance of desirable forage cover, all depend on adequate attention to bio-ecological problems, as does also the effective protection of game mammals, birds and fishes."

HE'S A FORESTER

The man who has a piece of woodland where during the winter months he cuts his firewood and fencing and a few logs for the repair of buildings and implements, and during certain years when prices are high cuts some logs for the neighboring sawmill, but at the same time looks after the piece of woods, cleans it of dead timber and other rubbish, thus keeping out fire and insects, and otherwise makes an effort to keep the land covered with forest--such a man practices forestry. His forest may be small or large, his ways of doing may be simple and imperfect, the trees may not be the best kind for the particular locality and soil, they may not be as thrifty as they should and could be; but nevertheless here is a man who does not merely destroy the woods nor content himself with cutting down whatever he can sell, but one who cares for the woods as well as uses them, one who sows as well as harvests. He is a forester, and his work in the woods is forestry. -- Filibert Roth.

THOSE IMPETUOUS CALIFORNIANS

By L. F. Kneipp, Washington.

The thing that has made California famous is not its climate but its spirit, its direct actionism, its tendency to nail things down with a large two-handed maul while others are still debating as to whether they want them or not. And when you think of California you inevitably think also of Lou Barrett, whose residence in that sublime territory dates back to the time when he could have bought for $2 per acre land that is now part of the City of Los Angeles, -- but didn't. It is a fifty-fifty bet as to whether Lou's chief aversion is the early June 11 listing policy in southern California or the fake mining claim situation. However, the listing problem is now dead, or at least sleeping, while the fake mining claim is a lively, hydra-headed monster which is endeavoring to eat into the choicest parts of many of the District 5 Forests. It had started to devour about half of Lou's old Forest, the Plumas, when he got busy, including among the notches on his gun the famous, or infamous, Yard claims which amounted to nearly a quarter-million acres of heavily timbered land. Since then Lou has been prodding the Washington office into action, shooting in facts and arguments enough to support a revolution. Now he has taken the matter into his own hands and his memorandum to his chief, which is given below, indicates that he has started something which may bring ease to his troubled district and afford it more time in which to plan out flossy recreational developments and other modern discoveries. It would not be surprising if California which now has about sixty per cent of the grief connected with fake claims would be the first to take it out and bury it. Here's the memorandum:

"This morning Dechant and I had a very interesting conference with the Committee on Mining of the California Development Association.

"Mr. Stevenot, the new State Director of Natural Resources, was present as well as a number of prominent mining men from around this region.

"Dechant and I explained to them the trouble we are having over invalid mineral locations and the general sentiment of the meeting was sympathetic. It is my understanding that a State meeting will be held the latter part of October in Los Angeles. At the meeting here a committee was appointed to consider this matter and see what could be done to remedy present conditions. We suggested amendment of the State law somewhat along the line of that in effect in Nevada and this suggestion received respectful consideration.

"I feel that we have at least started something and if this is followed up some substantial results may be obtained. I explained to the meeting that we believed that the correction of these errors should come from within the mining industry itself. That we wanted to give the mining industry the first chance to help remedy this situation and that if nothing developed from this it was believed public sentiment would require National or State legislation that would put a crimp in the invalid mineral locations that are a handicap to private business enterprises as well as to the Forest Service."

U. S. vs. COLORADO & SOUTHERN RAILWAY

The case of the United States vs. the Colorado & Southern Railway Company for the recovery of damages to merchantable timber, immature timber, and the cost of suppression, including temporary labor and Forest officers' time, was tried September 20 and 21 in the State Courts. The case was brought in the State Courts to get an interpretation of the State statutes relating to railroad fires, and to determine whether the cost of protecting endangered property was recoverable under that statute in an action for damages. A verdict for the full amount asked, less Forest officers' salary, was received. The District Court ruled out all evidence relating to the Forest officers' salary without stating the grounds for his ruling. The case may be appealed to the State Supreme Court.-District 2.

ANOTHER "OLD-TIMER" RETIRES

By J. W. Lowell, Bitterroot.

In the retirement of James D. Vance of the Bitterroot Forest on July 17, there closed a colorful record of one of the "old-timers" of the Forest Service, which stretched from its early days to the present.

Appointed as Assistant Forest Ranger on May 1, 1906, with a few years previous experience as a guard, Vance had his first introduction to the Service through Associate Forester Sherman, who was then the Supervisor of the Bitterroot Forest.

His knowledge of the hills in the vicinity of the Bitterroot aided materially in the beginning to bring about a better conception of the resources and the problems necessary to be solved. The untracked Forests were opened up under his construction of trails, telephone lines, and other structures. His was pioneer work, making smoother the way for those who were to follow; meeting the opposition of homesteaders, the stockmen, and others who objected to the administration of the Forests by the Forest Service.

Vance has seen great changes in the Forest Service during his connection with it, from the formative period, while under the Department of the Interior, to its present stage of development. Travel by team and spring wagon, free grazing, and large timber trespasses have given away to the auto and airplane, range allotments, and timber sales with regulated cuts.

Through it all, Vance's loyalty, integrity, and willingness to do his part whenever called upon were a great source of appreciation for those under whom he worked.

Mr. Vance, in his retirement, takes with him the best wishes of the Service, and the hope that his remaining days may be enjoyed in well-earned rest.

UPSON MADE EASTERN DIVISION MANAGER

Arthur T. Upson, Standards Engineer and Wood Technologist of the National Lumber Manufacturers Association, who has also acted as secretary of the Central Committee on Lumber Standards, has been appointed Director of the Eastern Division of the Lumber Trade Extension Department of the National Lumber Manufacturers Association, with headquarters at New York City. He will continue to serve as secretary of the Central Committee, and will also continue in charge of the National Association's standardization work.

Before joining the staff of the National Lumber Manufacturers Association, in the spring of 1924, Mr. Upson was chief of the Section of Industrial Investigations of the United States Forest Products Laboratory, Madison, Wisconsin. He was graduated from the University of Nebraska with a B. S. degree in 1910, and entered the United States Forest Service in the same year. For five years he was successively Forest Assistant, Forest Examiner, Deputy Forest Supervisor and Supervisor on Western National Forests. This work gave him an extensive practical experience in timber cruising, stumpage appraisal and milling and logging practice. His work as Forest Supervisor also gave him valuable administrative experience.

During the three years he has been employed by the National Lumber Manufacturers Association Mr. Upson has contributed greatly to the formulation of American Lumber Standards and their general adoption has been largely due to his tireless efforts. - From National Lumber Mfgs. Assn. New Release.

NEW MEXICO AGRICULTURAL COLLEGE GOES INTO RANGE MANAGEMENT

The State Agricultural College of New Mexico is carrying on extensive experiments in cattle and sheep production under range conditions. The college has 96 sections of land, granted by the Federal Government for this purpose. Some 400 head of cattle and 700 head of sheep will be used. The experimental work will include trying out of new forage crops and grasses that may be used to increase the carrying capacity of New Mexico ranges and pastures. This work will be of value to the livestock industry throughout the southwest. - District 3.

THE TARGHEE FENCE POST EXHIBIT

The Targhee Fence Post Exhibit at the Eastern Idaho District Fair at Blackfoot, September 13 to 16 was received by those attending the fair with an interest beyond our expectation.

The exhibit attracted as much attention as any agricultural exhibit on the grounds and it was apparent that in the matter of creosoting fence posts there is a real thirst for knowledge. It was explained in detail to approximately 2,000 farmers, many of whom expressed an interest in obtaining longer lived fence posts.

The exhibit consisted of a home made treating plant made from two 50-gallon oil drums having their tops cut out, set up ready for use as a hot and cold tank. Ten fence posts showing the serviceability of treated Lodgepole pine and of untreated species used locally comprised the rest of the exhibit. Two creosoted Lodgepole pine posts, still perfectly sound after 18 years in the fence, elicited much favorable comment, and there were also an Aspen post which failed at two years, a Douglas fir at 5 years, a painted Douglas fir set in cement which failed at 7 years, an Oregon split Cedar at 5 years, a native white juniper and treated and untreated Lodgepole pine posts. The split Oregon Cedar was called no good by nearly all of the farmers who saw the exhibit.

Mr. Shannon and Mr. Arrivee attended the exhibit and one or the other was there all the time to explain it and discuss creosoting and to pass out the hand leaflets. Among the clutter of "literature" thrown around the grounds, they did not find any of the Fence Post leaflets.

Mr. Hyrum Severson, one of the first men to run sheep in the Upper Snake River Valley, remembered the time of creosoting the treated posts and was much interested in them. The Register of the Land Office brought his son back with him to see the exhibit, and a number of other persons were noted who returned with their neighbors. One man returned five times with groups of farmers and became proficient in giving them a detailed explanation of the treatment. The secretary of the Shelley Commercial Club offered to promote treated Lodgepole pine fence posts near Shelley.

Mr. J. W. Barber of Burley, who supervises the County Agents of the Southeastern Idaho District, assured us that he would include this work in his instructions to the County Agents so that they would be prepared to help the farmers in obtaining their materials and in treating their posts.

County Agents Lovelace of Driggs, Bollingbroke of Rexbury, Tornetz of Pocatello, Tillery of Blackfoot, Anderson of Soda Springs and Morrell of Idaho Falls visited the exhibit.

We believe that the exhibit reached the class of men for whom it was intended and was a great step in the marketing of our round thinning material from Lodgepole pine pole stands. - District 4 Daily News.

YOU CAN SUBSCRIBE TO THE FOREST WORKER

Free distribution of the Forest Worker, according to the agreement of the Bureau of the Budget under which it is printed, is limited to 1,000. The bulk of this free edition goes to State forestry organizations, forest schools, forestry associations, and other cooperators of the Forest Service. Since this periodical, planned in the interests of a public outside the Forest Service, has developed a degree of popularity inside the Service as well, a situation has arisen in which our charity seems to begin and almost end away from home. Less than 200 copies are available for free distribution to the District offices, with a few for the Laboratory and for each Experiment Station. It is desired that men in the Forest Service who would like to receive the Forest Worker regularly who are not reached by the present distribution understand that the restriction is due to a ruling of the Bureau of the Budget. The attention of such men is invited also to the fact that the Superintendent of Documents, Government Printing Office, Washington, D. C., is authorized to send the Forest Worker regularly to anyone in the United States at the nominal charge of 25 cents a year. To anyone who finds it awkward to write a check for such a small amount the suggestion is made that $1 will bring the worker for a year to him and to three of his friends.

HEIGH-HO

LAST WEEK: Rain continues to fall, and roads are practically impassable, states the Coconino News of September 24. The stockmen are jubilant, but the rest of us would like to see the sun shine once more. Fencing and road work is continuing though much hampered by the terrific storms which sweep over the forest daily. One of the truck drivers asserts that there are dozens of storms traveling in "mile wide streaks".

THIS WEEK: Violent winds the past three days; states the Coconino News of October 1, have dried out the ground and small growth to such an extent that unless we get rain within the next few days it will probably be necessary to put on a few lookouts and fireguards for at least a part of the hunting season. Dave Joy says the ground in the woodland, which two weeks ago was like a reeking wet sponge, is now dry for at least ten inches below the surface. - D-3 Daily Bulletin.

A "SHOW ME" TRIP

While the riding of the range in Manti Canyon by forest and city officers and interested stockmen was intended primarily as a business trip, there was nothing to prevent combining pleasure with business and so artistically were the two elements combined by those in charge - Supervisor Humphrey and Ranger Cox - that everybody voted it a delightful outing. The purpose of the trip was to inspect the range and ascertain if it is advisable to make some changes in the grazing regulations in Manti Canyon. Messrs. Humphrey and Cox represented the forest, Councilman Ottoson represented Manti City, some ten local permittees were there in their interests and Captain Jensen and Editor Peterson were invited as special guests. - D-4 Daily News.

A FIND IN CUTTING UP TIMBER

Four iron arrow heads were found embedded in the center of an old yew tree at Fair Oak, England, when the dead wood was being cut away. The long cone shaped arrow head was not used in Europe till after the Crusade; it is of Saracen pattern and is armor piercing. Probably all were shot from the long bow. They may have been shot into the yew tree by archers training for the latter Crusades. The gift of finder, Lt-Col. Edward Cheke, 1924.

These four arrow heads vary in size, the largest being about 8 inches long by 1 inch broad, and the smallest about 3 inches in length by ½ inch breadth. Only one of these arrow heads is cone-shaped, the remaining three having, as it were, a broad blade for the head with a shank. - The Timber News. (Indian Forester, August 1927.)

Service Bulletin

U.S. FOREST SERVICE

(Contents Confidential)

VOL. XI. No. 45. WASHINGTON, D. C. November 7, 1927.

CREOSOTE AND SILVICULTURE

By Joseph C. Kircher, Washington.

District 4 has embarked on an experiment in salesmanship and close utilization that, if successful, may have farreaching effects on the practice of silviculture in lodgepole pine.

The most important product secured from the lodgepole pine stands on the National Forests is railroad ties. Where stands are reasonably accessible there is a good market for ties but there is not much of a market in most places for any other products. In some of the stands mine props can also be marketed but ordinarily the amount of prop material which should come out at the same time with the ties is much greater than the market can absorb.

The trees best suited for hewn ties are those with a D.B.H of from 11" to 14" although operators will take trees for hewing up to 16" and occasionally to 17". There is a good demand for hewn tie size trees but no demand for larger trees and little for smaller ones. To practice good silviculture in the lodgepole pine stands, in addition to taking out a large percentage of the tie size trees, nearly all the larger ones and a number of the suppressed and defective smaller ones ought to be cut.

In the tie sales of some years ago the operators were required to take only the hewn tie trees. The result was that cut-over areas were not left in good shape. To better things, recent sales have required the cutting of all marked trees larger than tie size.

This contract requirement has forced the small mill into the lodgepole pine stands to supplement the work of the tie hack and it is now common practice for operators to saw ties from the larger trees with small portable mills. This has solved a part of the utilization question.

The problem of using the tremendous amount of small material from the sale areas still remains, even though on many sales a portion of it is used. It consists both of material in tops up to 9" and of a large number of small trees from 4" to 11" in diameter which ought to come out if the stands are to be put into condition for accelerated growth.

Some of this small material is now marketed as mine props, mine ties and cordwood, but the great majority stays in the woods. In the District 2 Forests in Colorado and to some extent in southern Wyoming, markets have been developed for a good deal of this material. In eastern Montana also, some market exists. District 4 on its Wyoming forests so far has been able to market practically none.

For some time, however, District 4 has been experimenting with lodgepole pine for fence posts. This species makes a smoother and better fence post than northwestern cedar and if creosoted will outlast it. The District believes that creosoted lodgepole posts can successfully compete with cedar both locally and in the States further east, such as Nebraska. It has been treating posts in a few small home-made plants by the open tank method and believes that the creosoted lodgepole can be laid down locally for less money than northwestern cedar which it would have to replace. But to develop a market, it was necessary to find an operator who was willing to experiment.

Such an operator has now been found on the Targhee Forest in Wyoming. To start things, the District has given this operator, under administrative use, the marked trees on an area of about 60 acres. Twenty-five car loads of material are to be taken off this area and the possibility of developing markets for small products is being given a thorough trial on a large scale.

The original stand of the cutting area was about 100 years old and the dominant trees average about 6" D.B.H. A few ties were cut from the area but the bulk of the material consisted of 10 foot stock yard posts, fence posts, and poles to a minimum diameter of three inches. The material has now been cut and removed from the area. The posts after seasoning will be creosoted by the open tank method. Accurate operating costs are being kept and of course selling prices will be secured so that the feasibility of operations of this kind may be determined. Both the operator and Forest officers believe that a market can be successfully developed.

The cut-over area has been heavily thinned and now contains an excellent stand of well formed, long crowned, dominant trees, well spaced so that they should grow fast. It is really one of the finest cut-over areas in the lodgepole pine region and demonstrates the best of forestry practice. Sample plots for the study of growth after cutting have been laid out so that even if the marketing of a large number of lodgepole pine fence posts does not become a reality, a lot of useful information will be collected.

If the marketing of creosoted fence posts is feasible, a large field for better utilization and better silviculture in lodgepole pine stands is opened up since the consumption of posts in the treeless regions of Wyoming, South Dakota, eastern Colorado, Nebraska, and Kansas is very great. The outcome of the experiment will be watched with a great deal of interest.

IN FOREIGN FIELDS

By Margaret K. Schoder, Washington

When is a ranger not a ranger, but a dude wrangler?

While making a trip the past summer to visit Moritzburg, an old German Castle still occupied by one of the ex-princes of Saxony, we were driven for miles through a handsome spruce forest and kept an anxious lookout for a forester as Exhibit A. This was a privately owned forest, a part of the estate surrounding the castle, and looked the typical traditional German woods, with its carefully thinned, even-aged stand and the ground scraped clean of underbrush. The area abounds in deer and wild boars, and apparently one of its main uses still is to furnish hunting for the royal family and their friends. During a certain period of the year these animals are fed at a central feeding grounds instead of roaming at large, and the admission fees which curious tourists pay to see ugly boars rooting about and yowling at each other, and to go through the castle, must practically support the prince and his family the rest of the year.

Here at the feeding grounds a forester was discovered at last - a short fellow dressed in a natty uniform, with a little alpine hat. To all appearances all he had to do was feed the boars and entertain tourists. I should hate to have this statement go down as an authentic report, however, for it is based on the same sort of perfunctory observation which must lead the dudes visiting our western Forests to believe that a Forest Ranger's job is "just ridin' around." Not being able to communicate in German much farther than "Guten Morgen" and "Wir haben schoenes Wetter," the writer could not question the gentleman as to the life history and habits of German foresters and therefore missed a golden opportunity for a little research along this line.

A girlish illusion was shattered for this forester had no whiskers -- no, not even a sign of a mustache. Perhaps the PR code of German forestry calls for close shaves? Plenty of mustaches were seen on his countrymen, however, including many of the waxed, upward-pointed variety made famous by the ex-Kaiser.

Throughout the castle the walls were decorated with hundreds of deer and boar heads, including a number of freaks. One deer head had the left antler grown down directly over the muzzle so that eventually the animal starved to death from inability to eat. A huge 3-foot deer horn had been hollowed out for a drinking vessel, and according to the story every guest at the castle in the old days was offered a drink out of the horn, and the manner in which he imbibed the wine was carefully observed and noted in a book kept in the family archives.

Forests in Germany cover 26 per cent of the total area of land. Of this 34 per cent belongs to the states making up the present republic. Switzerland has 20 per cent of its total area in forests, of which only 5 per cent is state-owned, the balance mainly in communal forests. Spruce, silver fir, and Scotch pine are the principal species throughout central Europe, intermingled with birch, beech, and oak.

Switzerland has a difficult problem on its hands in the prevention of erosion and the control of avalanches on the steep mountain slopes. From the shoulder of the famous Jungfrau on a warm sunny day one may see, from his safe haven of hotel and restaurant actually built inside the white mountain, the beginning of a small slide of snow which rapidly develops into a terrifying avalanche and thunders its way down the steep slopes, destroying everything in its path.

Planting to produce a dense forest cover is the method of control used below timber line, but above that altitude, where most of the avalanches start, snow fences or barriers and stone retaining walls break the sharp inclines and retard the movement of the slide. At Lauterbrunnen ("nothing but springs") streams of water pour down the hills in every crack left between dense stands of trees. Immediate reforestation is undertaken on any areas where the trees are destroyed by a slide. Were it not for the forest cover and the retaining walls and fences to break the sheer drop of the water, this little village and the entire valley would be washed away every season.

Nestling between the great jagged red slabs of the Dolomites lie the fertile lowlands of northeastern Italy. The hills are crowned with fine stands of spruce, mixed with oak, ash, sycamore, and beech. Here there is much activity in the way of logging; little sawmills hum busily; horse-drawn wagons carry huge loads of lumber to the railroad. 2x3's are piled and spaced on a wagon so that the top and sides of the load are perfectly spherical, the load about six feet in diameter, resembling from a distance a large water-wagon rumbling down the road.

Women in the fields carry on their backs large cornucopia-shaped baskets piled high with hay, young girls bent almost double under the load, and old women staggering with the weight of the burden. No women were actually seen felling trees, but it would not be at all surprising to find them put at this sort of work. It might be considered to require too much brains, however, since it was noted that men did the cutting of the hay (using the old historic hand scythe) but a woman was always utilized as the beast of burden.

The Czecho-Slovak republic, small as it is, has field after field of sugar beets and is known as the "sugar bowl of Europe." Next to potatoes, the beet is their largest crop, and sugar brings in more money than any other export.

Practically every inch of Czecho-Slovakia is under cultivation. 42 per cent of the area in the republic is arable land, 33 per cent in forests. Only a little over 3 per cent of the total area is unproductive land, that is, devoted to buildings, roads, etc. The average yield of grain crops to the acre is almost twice that of the United States. The Czecho-Slovakian land is so valuable and so intensively used for agricultural crops that there is little left for grazing land, although 19 per cent is said to be in meadows and pastures. Only a small number of sheep are grown. In cattle raising a fair showing is made, but nevertheless a great deal of the meat consumed has to be imported. In most other commodities this little country is said to be self-supporting. Statistics show a credit balance of exports over imports of all standard articles except flour, fats and chemicals.

The forests of Czecho-Slovakia cover an area of about 10 million acres, mainly soft woods, although about 2 million acres support hardwood stands. Much of the industrial hardwood is imported from Russia and the United States.

An interesting commentary on Czecho-Slovakia was the statement by a prominent business man there that Prague, the capital, is "over-educated." There are many highly trained lawyers and doctors, the republic is too small for them to spread out, they cannot make much of a success in any other country due to the impediment of language and the rather strained international relations, and as a consequence the one sizable city in the country is greatly over-supplied with professional men.

We couldn't have learned any of this from reading the signs and newspapers in Czecho-Slovakia, with their apparent disregard of any need for vowels. A traveling companion on the train offered to teach us some Czech, but after getting as far as PRST (finger), SMRK (pine tree), and TRZISKO (market-place), we decided there were too many stray z's, p's and k's for mere Americans to absorb.

Healthy respect is also due the natives of Switzerland, not only for their admirable knowledge and application of forestry, but also for their ability to enunciate without a stutter such words as the name of the fast train coupon of their railroad tickets — Schnellzugzuschlagschein.

WHAT FORESTRY MEANS TO THE RAILROADS

(Continued from October 31 issue)

The Southern Railway Company is operating a forestry project, the primary purpose of which is to demonstrate that the growing of pine trees may be made a profitable business in the South Atlantic and Gulf coastal plains and that lands may be used for this purpose that cannot be farmed profitably under present economic conditions.

It is a tradition that when the railroad from Charleston, South Carolina, to Augusta, Georgia, which is now part of the Southern Railway System, was built more than ninety years ago, large acreages of woodlands were acquired to assure a fuel supply for the wood-burning locomotives then in use. When wood was superseded by coal, sales of these lands were made from time to time, but the Company still owns tracts of various sizes, aggregating about 18,000 acres, for which no market has been found for the reason that much of it is too wet for farming. But it is ideal for growing pine trees, especially the water-loving slash pine. Last year a system of forest management was inaugurated on a tract of about 10,000 acres near Pregnall, South Carolina, and smaller near-by tracts.

All of these lands had been cut, but, fortunately for the future of the forest, lumber was not so valuable then as now and a large number of trees were left which have served to keep the lands thoroughly reseeded. The original stand was loblolly and longleaf pine and several varieties of hardwoods. As a result of having an abundance of seed, notwithstanding the frequent burning of the land, most of it is covered by a fine stand of young trees of varying ages, but the second-growth trees are almost all longleaf, which is more fire resistant than loblolly. On some areas where fires have been more frequent or more intense than on others not even the longleaf has survived. These areas are being replanted. All plantings are being made with the quick-growing and more valuable slash pine, of which there was none in the original stand and of which there are no seed trees.

A cruise of this tract showed enough mature trees to make immediate lumber operations possible, and in June, 1925, a sawmill was installed by a contractor working under the supervision of the Company's forester. All of the longleaf pines of nine inches or more in diameter at breast height are being turpentined by a conservative system which will not materially reduce the rate of timber growth. This operation has already conclusively demonstrated that lands of this character can be made to yield satisfactory profits from the growing of trees. Based on current prices for lumber being paid by the Southern Railway Company, this forest has produced a profit after absorbing all expenses.

These lands, topographically and with respect to the character of growth on them, are representative of large areas throughout the South Atlantic and Gulf coastal plains, and the main purpose of the Southern Railway operation is to demonstrate to the owners of these lands that it will pay them in dollars and cents to keep out fires and give the trees a fair chance even though they may not go to the expense of planting.

There is need for additional information as to the rates of growth of longleaf and slash pine and the effects of thinning upon growth, although data are now being assembled at several points in the South. As a contribution to this information, plots of longleaf pine in this forest have been turned over to Mr. H. H. Tryon, Extension Forester of South Carolina, who has inaugurated thinning experiments and the accumulation of growth data. On these experimental plots each tree is numbered and a yearly record of growth will be kept for each tree and will be compared with the growth of similar trees in a check plot where no thinning will be done. Similar growth and thinning experiments will be carried out in the slash pine plantings.

The general adoption of this system will bring into profitable use vast areas of land that are more valuable for timber growing, under present conditions, than for any other use, and will, at the same time, assure the important woodworking industries of the South perpetual sources of raw materials.

HOW WE THROTTLE THE MINING INDUSTRY

By H. D. Cochran, D. 2

An old question has come to an issue in recent articles in the American Mining Journal and Colonel Greeley's cogent reply. It has long been with us in D-2, - to the extent that we got out our records a few months ago and footed up some columns. These records for Colorado and South Dakota show that of 2,146 applications made for patent to mining claims (both lode and placer) covering 6,394 claims, 173 applications (673 claims), or 8 per cent of the applications, have been protested by the Forest Service in this District. Furthermore, of all the claims patented to date within the National Forests of the two States (26,307) less than 8 per cent of the acreage is now being used for the production of mineral and only 49 per cent of the acreage ever has been so used. Figures for mill sites run in about the same proportion. A total of 46,550 acres has been logged off on these claims for purposes other than mining, and their present total value for purposes other than mining is estimated at $2,106,499. This indicates clearly that the attitude of the Forest Service has been one of great leniency in a majority of cases.

Cases can probably be cited on nearly every National Forest in the mining sections where good streams and lakes have been sewed up by the location of mining claims which have never shown much value for anything but a means of holding the public from the use of waters which should be open to them. Such locations are a public nuisance and a reflection on the good faith of the mining industry as a whole, especially when the opposition of the Forest Service, maintained clearly in the interests of the public good, is resented by miners of good standing or by official organizations in their meetings.

WE GO ON THE AIR

By C. E. Randall, Washington

Farm Forestry will be in the air this season.

In the series of farm radio programs which has been formulated for the U. S. Department of Agriculture Radio Service for the 1927-28 season, the Forest Service has been assigned 18 definite dates, and additional material will be used in the daily "flashes" that go out on the air. With the start of the current farm radio broadcasting season on October 1, some 90 stations were signed up to broadcast one or more of the Department's regular features, these stations being scattered throughout the entire United States. From the results of a recent survey by the Department of Agriculture, it is estimated that one farm in every four in the United States is now equipped with a radio receiving set. The number of farm radio sets on April 1, 1927, was placed at 1,252,126, and reports from broadcasting stations indicate that the Department's farm programs are very popular with the rural listeners.

The Forest Service programs will be included in the following features: Radio Farm School (instructive ten-minute talks on farm methods and practices); Young Folks' Programs; Housekeepers' Chats; and Noon Farm Flashes (largely short talks and questions and answers on farming problems). For the last named feature, any amount of material can be used, and Public Relations, which is handling the radio work, will appreciate the help of the other Branches in getting this material together.

The schedule of assigned Forest Service Programs is as follows:

RADIO FARM SCHOOL. Oct. 31, "Farm Woodlands and Their Value;" Dec. 12, "How to Cut Trees to keep the Farm Woodlands Producing;" Jan. 16, "Measuring and Marketing Farm Timber;" Feb. 27, "Treating Farm Timber Against Decay;" Mar. 12, "Forest Tree Planting on the Farm;" Apr. 9, "Planting Trees for Protection;" and Apr. 16, "Protecting Farm Woods" (Fire and Grazing).

YOUNG FOLKS' PROGRAMS. - Oct. 28, "Why the Leaves Change Their Color;" Dec. 2, "Adventure Story;" Dec. 23, "Christmas Trees;" Jan. 6, "Trees in Winter;" Jan. 20, "The Forest Ranger;" Feb. 3, "How Paper is Made from Trees;" Mar. 23, "Wild Life of the Forests;" Apr. 13, "Trees in Spring;" and Apr. 27, "Forest Fires."

HOUSEKEEPERS' CHATS. - Dec. 9, "Christmas Trees and Greens;" Jan. 10, "Selection of Furniture Woods."

Special material will be used on nearly all the Radio Service programs during American Forest Week.

NICE WORK

The effectiveness of field exhibits and "Show Me" trips in promulgating the National Forests is illustrated in the following notice from the Blackfoot Daily Republican's account of the recent Idaho Editors Convention on the Targhee Forest.

"Mack's Inn is in the forest reserve, and the forestry office tendered the editors the service of a couple of their men to show every thing of interest. ("Show Me" trips). Just below Mack's Inn a good many signs by the roadside set forth the questions that people usually ask about trees, such as, 'How old are these trees?' (a field exhibit.) 'How long do they live?' 'When is the right time to harvest timber?' 'Do they grow as well in thick timber as when it is thin?' 'Are all trees the same age if they are the same size?' 'Why is it that pines die so readily when they are transplanted?' The foresters explained that these trees ranging from four to five inches to a foot in thickness average about 90 years old. Then they show sections of different ones that have been cut off, and the one that is 4 inches in diameter may be 150 years old and the one a foot through may be only 50. It depends on the moisture of the soil conditions and on the amount of sunshine the tree gets. Trees that grow in the shade do not do so well, and trees whose roots are intermingled with others do not grow well.

"Trees die at all ages and sizes, and a forest produces more timber if it is kept thinned out. The right time to harvest timber is when production would be greater if some of it were cut out...............". - D. 4 Daily News.

NEW NATIONAL FOREST FOR FLORIDA

President Coolidge has just signed a proclamation segregating the Ocala division of the Florida National Forest at the Ocala National Forest.

The creation of the Ocala National Forest as a separate unit will further the growing of timber on the sandy soils, the protection of the area against fire and the improvement of the area for recreational purposes, together with administration of the game, in cooperation with the State Game Department.

The new Ocala Forest will have a separate administrative organization.

THE VALUE OF FOREST NEWS

By Fred R. Johnson, D. 2.

I spent a week recently on the Conejos District of the Rio Grande Forest with Supervisor Clark and Ranger Beals. I picked up the Antonito paper while there and noted three articles on forestry activities written or inspired by Ranger Beals.

One evening we had a telephone call from the editor of the Antonito Ledger, asking if he and the publisher could talk to us that evening about the recreational plans we were making for the Conejos District. The two men arrived about 7:30 after a sixteen mile drive and stayed until eleven o'clock discussing forestry activities and recreation. Supervisor Clark explained the reasons for making a recreational plan, showed how the National Forest land adopted to recreation was allocated to various uses, giving precedence to public uses. The need for this was emphasized by the fact that out of 49 miles of fishing streams in the unit, only 46 per cent is owned by the government.

Messrs. Beals and Clark took this opportunity of bringing to the attention of these men the need for the development of the Aspen Glade Camp Ground near the River Springs Ranger Station, which the Antonito Commercial Club has talked about developing. The plan for the improvement of this camp was worked out tentatively, involving the expenditure of about $200 annually.

As a result of the evening's conference the next issue of the Antonito Ledger might appropriately have been called a "Forest Number". There was a long article on the plan of the Forest Service for developing the recreational possibilities of the region and particularly stressing the need for this. A strong editorial called upon citizens of Antonito to cooperate with the Forest Service in developing the Aspen Glade camp ground. Another article gave the timber resources of the Conejos watershed and the tentative plans for harvesting the timber on a sustained yield basis. Another told of cutting some bug infested yellow pine by cooperators and how this should be done.

How's that for putting PR across? From D. 2 Bulletin

NEW LUMBER SALES ORGANIZATION FORMED

According to the daily papers Albuquerque is to become the headquarters of a large lumber sales organization. Three of the large lumber companies of the District have organized the Southwest Sales Corporation with headquarters located at Albuquerque. Mills cooperating in the organization are the Cady Lumber Corporation, McNary Mill, cutting jointly from the White Mountain Apache Reservation and Sitgreaves Forest, and Flagstaff Mill cutting on the Coconino; the White Pine Lumber Company mill at Bernalillo, N. Mex., cutting adjacent to the Jemez Division of the Santa Fe; and the Standard Lumber Mills, Inc., about to commence operating on the Deer Springs Unit, Sitgreaves Forest, with a plant at Standard, Arizona. The combined annual output of these several mills is estimated at close to 200 million feet. Group selling is the merchandising trend of big business and as this is the first lumber organization of its kind in the southwest it will be watched with considerable interest. - District 3.

STOCKMEN'S MEETING AT FAIRPLAY

Assistant District Forester Hatton attended the Annual South Park Woolgrowers Meeting at Fairplay October 22. The unique feature of this meeting is that Supervisors of the adjacent Forests take advantage of the occasion to go over conditions and allotments for the coming season and the permittees know well in advance about what to plan on for the coming year. This is distinctly to their advantage, and it is made possible in this instance through the establishment of an economic unit consisting of South Park and setting aside for that unit sufficient summer sheep range to supplement it. It is one of two instances in this District where this policy is followed and, it is believed, one of the few in the Service where plans can be made the fall before for the next season's grazing. Any local changes in ownership, settlements, etc., within the Park are considered in the annual adjustments, but a certain amount of range is reserved sufficient to go with the pasture and field production within the Park. - District 2.

NECESSITY THE MOTHER OF INVENTION

After using a Brunton compass for over 20 years I thought I knew every possible use that could be made of this instrument, even to using the mirror while shaving, but recently one of the Tahoe Rangers demonstrated a new use to me.

In the course of a mineral examination I found myself faced with the necessity for entering a 150 foot tunnel, and with no source of illumination, candle, carbide or flash light at hand. The Ranger took the Brunton to the opposite side of the ravine and with the mirror reflected the sun's rays into the tunnel. Much to my suprise, I found better visibility by this means than could have been obtained from any of the sources of artificial light usually used underground. W.H.F., - D. 5 News Letter.

TRUTH IN ADVERTISING

"MEN, GET FOREST RANGER JOB; $125-$200 month and home furnished; permanent; hunt, fish, trap. For details write Norton, 268 McMann Building, Denver, Colorado."

"MEN WANTING OUTDOOR WORK, qualify for forest ranger position, Start $125 month; cabin and vacation; patrol the forests, protect the game; give tourist information. Write Mokane, Department M-10, Denver, Colorado."

Forest officers may know prospective applicants for the ranger and other examinations who will be interested to know that the Utah Agricultural College is to establish a 4-year course in forestry, preparing students for both the Junior Range Examiner and Junior Forester positions. The college will arrange a course for freshmen this year so that they can next year enter the second year work of the forestry course in full standing. Any one interested should correspond with Kenneth C. Ikler, Daan of the Utah Agricultural College, at Logan, Utah. - D-4 Daily News.

Service Bulletin

U.S. FOREST SERVICE

(Contents Confidential)

VOL. XI No. 46. WASHINGTON, D. C. NOVEMBER 14, 1927.

AN OPEN LETTER TO THE NATIONAL LUMBER MANUFACTURERS ASSOCIATION

Gentlemen:

In a widely published advertisement your Association has made use of my name and that of the United States Forest Service to give support to statements concerning our timber supply and its replenishment which I cannot accept as an accurate portrayal of the situation and which I believe will lead to a misconception by the public.

This is done in connection with the lumber industry's opening of a five-year program of trade extension. With the general purpose of that program, as I understand it, I am in sympathy. Lumber is one of the great basic products of our soil, and I am strongly in favor of promoting - not restricting - its use for all purposes for which it is inherently better fitted than other materials. The work of the Forest Service is designed to find out and make known the best ways to use wood, no less than to increase the production of wood.

It has never been my view that forest conservation ought to be accomplished or can be accomplished by refraining from the use of wood. I have always favored a constructive solution of our forest problems through the growing of timber rather than a negative solution through hoarding the timber we now have. I hope to see a wide and liberal use of wood continued in the United States, thereby promoting industry, commerce, and the satisfaction of consumers' needs, and encouraging the profitable employment of our vast areas of land that has little economic utility except through growing forest crops. Your advertising material quotes me as having said "Use wood and conserve the forests." Whether or not the quotation is technically correct, it correctly expresses my viewpoint provided conserving the forests means not simply cutting ripe timber but a positive program of land management that will insure reforestation. But when this quotation appears under the heading "Plenty of wood for all future needs," or in another instance under the heading "No timber shortage," and when prefaced, as in your advertisements, by a statement denying that a shortage of timber is impending, it misrepresents my views and convictions. By inference the impression is given that I believe there will be no shortage of timber.

Again, your advertisement asserts that "one-fifth of the entire area of the United States will continue to grow trees indefinitely," and it declares that all of these statements as to abundance of supply and regrowth are not "opinions" but "facts, backed by extensive investigations and published reports of the United States Forest Service."

On the contrary, although one-fifth of the United States is actual or potential forest land, the investigations and reports of the Forest Service have repeatedly stressed that our timber supply is being used up much faster than it is being replaced, that most of our lumber still comes from the diminishing virgin forests, and that the gravest evil in the present forest situation is the large and increasing areas which, after lumbering, have ceased to grow timber and will not grow timber indefinitely unless aggressively reforested. The United States will certainly have to face a period of diminished domestic supply of timber, at least of grade and quality equal to that abundantly available in the past. How serious this shortage or its consequences will prove, I do not pretend to forecast. They will depend upon many factors, and primarily upon the speed at which we extend and intensify the growing of new timber crops.

I am concerned primarily in this matter over the danger of creating an impression on the part of the public that the United States has no forest problems, that our forests are now self-replenishing, and our timber supply inexhaustible. We have enough available land to make our timber supply self-sustaining and avoid any curtailment in the present use of wood PROVIDED it were all intensively growing timber to replace what we currently cut. But we are still very far from having attained that happy situation. And to attain it there will be required not only all that the forest-using industries can do to replace their raw material but all of the public support that can be mustered behind the State forestry departments and the national Forest Service in the extension of forest protection, research, timber planting, and public ownership of forest lands. I am sure that it was not your intention to imply that the forestry problems of the United States have been solved and there is nothing more to be done; but that is a reasonable implication from the advertising material to which I have referred.

I want to add my appreciation of the growing interest of the lumber industry, as well as of other forest using industries, and of your Association in reforestation and of the considerable number of concrete instances where timber growing has been undertaken on industrial land holdings. The future of our forests lies largely with the industries which use them, because they own the bulk of our forest land. To the degree that the forest industries undertake the growing of timber in connection with and as part of their utilization of what is now on the ground, their forests will be self-renewing. There could be no finer or more adequate contribution to the solution of our national forest problems than a firm resolve on the part of the lumber industry that wood SHALL BE a perpetual resource of the United States and the acceptance of the responsibility thereby entailed as to the reforestation of their own lands.

I recognize no less the responsibility which must be accepted by the public in bringing this about; and it is because the public must thoroughly appreciate the situation and be prepared to accept its responsibility that I do not want it to misapprehend the actual facts of the situation.

I am for using wood for every purpose where its use is advantageous, not because there is no danger of a timber shortage by and by but because the more wood is used the greater will be the incentive to grow wood and the more adequately will our large areas of land that must produce wood crops or nothing be employed. Idle land is the most serious feature of our forest situation. Already we have far too much of it. Its amount is still increasing. Wherever lumbering takes place without reforestation, the amount augments. We need wood for consumers' needs; we need the industries and labor payrolls supported by wood; we need the domestic and foreign commerce sustained by wood; and we certainly need to keep our wood producing land profitably employed. All of these are parts of one whole - and the productive use of land is inseparable from the continued widespread use of its products. So I freely subscribe to the slogan "Use wood and conserve the forests" in the sense of use wood and replace the forests.

W. B. GREELEY,
Forester

This letter has been sent to the NLMA and Newspapers.

A CONSTRUCTIVE RANGER MEETING

By R. A. Phillips, D.1.

From May 2 to 7, inclusive, I was in attendance at a Ranger meeting held near the Swamp Creek Ranger Station on the Kootenai Forest.

The first half day of the meeting consisted of a round-table discussion, where the problems confronting the local organization were threshed out and the program, finances, ways and means for getting the most out of the money spent were gone into very fully. During the afternoon, three trail-location parties consisting of three men each were furnished with Forms MR-2 of a proposed trail that had been previously located by Ranger Woods and were sent out to make a preliminary location of a way trail. Each crew was furnished with different colored cloth for marking the location on the ground. In the selection of a final route, parts of all preliminary surveys were used and for a short distance an entirely new location was followed.

May 3 was spent in staking the final location and in clearing the right of way. The men changed off on this work and individual instruction was given in breaking grade to dodge obstacles. Slope stakes were set on all slopes over 40 per cent as a guide for plowing and for clearing. All stumps and brush within the staked area were cut high for horse pulling, while those outside were cut as low as possible.

May 4 the work continued as on the previous day except that grubbing with the horse started in the morning and one furrow was plowed for a considerable distance by noon. Each man took his turn at the plow and grader and work continued with this equipment all next day. No plowing or grading was done on slopes under 40 per cent, the ground simply being marked by dragging the grader over it. The average slope aggregated 70 per cent and the maximum slope was 90 per cent, of which there was approximately 400 feet. One rock outcrop that required powder and short sections of slide rock were encountered. The ground was fairly rocky in places and was very wet and heavy and hard to work; in spots frost was in the ground and necessitated some hand work.

As the grading was more or less in the nature of a demonstration of what could be done with the equipment, sections of the trail were graded to secondary and even to primary standards. With the exception of some 90 per cent slope on difficult ground, a round trip with the plow and one with the grader only were necessary; on the section mentioned two round trips with the plow were made and the side slope plowed down so as to give ample pack clearance. About 28 chains were constructed to secondary and primary specifications, while 25 chains were graded sufficiently to meet way specifications and required one trip one way with the plow and grader each. One switchback was put in and graded to a width of 6 feet with the plow and grader and demonstrated that very little handwork is necessary even in switchback construction.

Practically all grubbing was done with the horse, and a type of swamp hook designed by Assistant Supervisor Dwinelle gave exceptional results. This hook worked well in pulling small stumps and clusters of brush. In Ceanothus brush it was often possible to pull the entire clump with one attempt. The hook can probably be improved with use and has great possibilities in clearing trail right of ways of brush. Its use should tend to reduce trail-maintenance costs materially as nearly all brush sprouts readily from the stump, and with the pulling of brush by the roots the need of repeated brushing out of trails would be materially lessened. It occurs to me that the grubbing of our telephone lines would also eliminate a great deal of the expense of brushing out currently.

Assistant Supervisor Billings kept cost data on the project and the following distribution is given based on average crew organization:

	Right of way	Stumping with horses	Plow and grader	Horse
Hours	100	38	33	29

Wages:

41 hours at .40	$16.40
130 " " .35	45.50
Foreman ($4.75 for 3 ds.)	14.25
Cook at $100.00 per mo.	10.00
	$86.15

Computing all overhead at the ratio of $3 for labor to $2 for overhead the total cost of 87 chains of trail is $143.58, or at the rate of $132 per mile. It is estimated that $10 per mile should be expended to put the trail in final shape, as a few small jobs yet remained to be done such as cutting a few trees too close to the trail, picking loose rocks out of the tread, putting in a turn-around on the switchback and grubbing a few willows from the tread of the trail.

After the work was called off the entire crew went over the trail and discussed the completed job, where improvements might be made, and the reason for doing certain things as they were actually done.

The next day, May 5, the meeting turned over to fire work and spent the day on a hypothetical fire marked out on the ground by Assistant Supervisor Dwinelle. Parties of two were organized to go over the ground, determine plan of action, survey the fire, and estimate damages. After the field survey the men worked up their notes and wrote up the plan they would follow were the fire reported at 40 acres at 2 p.m. on July 13, burning under certain weather conditions and with certain resources available. The plans were then read, discussed, and criticized by the assembled meeting and a plan prepared by Klehm and Dwinelle used as the basis for a more nearly ideal plan.

The balance of the time at the meeting was spent in the discussion of training and written instructions to temporary men, fire forms and reports, accounts and purchases, etc.

I was impressed by the apparent success of a meeting of this kind; the ease with which it was possible to come to an agreement on the ground as compared to a discussion at a round-table conference; the readiness with which men grasped methods and ideas; and above all the spirit of rivalry and enthusiasm that pervaded and dominated the entire meeting in spite of the fact that weather conditions were far from ideal, there was snow or rain nearly every day, the ground was frozen in spots and wet and heavy to handle.

THE OBSERVING EYE AND THE HANDY NOTE BOOK

By Will C. Barnes, Washington.

Not long ago the Biological Survey and the Forest Service started some investigations as to the alleged damage by sheep to certain ground nesting birds in the higher regions of our western Forests. Only a few Forest officers could give any direct clear-cut evidence on this subject. They had seen many things but had neglected to put their observations down at the time and as usual with the human mind their memories were weak as to dates, places, and other simple but necessary details. Memories always are wobbly on such points.

Among the few of our men who could furnish real data on this subject was Joe Kittredge, Jr. Joe must have been cursed early in life with a keen observing eye plus a strong desire to make notes, for no sooner did he connect up with a Forest Assistant job in Idaho, Montana, and other far western localities back in 1912 than he began to see things. Moreover he put them down when, where, and as, he saw them.

Thus it was he had right at hand ready for use when called for a considerable number of definite instances spread over several years in which he had observed birds' nests, their eggs, and the young birds right where sheep had grazed over them. Best of it all was that he never had seen a nest that showed signs of injury by the trampling sheep. Why? Well because in the greater number of cases he found the eggs had been laid and hatched long before the sheep came into the high regions where the game birds nested. In the others, the animals had evidently passed round the nests without stepping upon them. Joe Jr. saw all these facts and put them in his little notebook.

A naturalist need not necessarily be a forester, but certainly at the very least a forester should always be a pseudo naturalist. Besides such matters add wonderfully to the interest of the job. I dont believe John Burroughs or John Muir either of them was such a great literary genius as he was a keen-open eyed observer. They put into their daily notes a world of little things covering nature in all her moods. Its the little things that count. Everyone sees and remembers the big things. Then when they did want to write about anything in that line they had so much material from which to draw that what they wrote was so real, so vivid, and full of interest that the literary end of their stuff was lost sight of in the wonderful and absolutely accurate pictures they drew from those same notebooks.

The habit of jotting down each day happenings of various kinds is one that every Forest officer should cultivate. Once fixed it is a hard one to break.

Men constantly out in the open have a wonderful opportunity to learn of nature's interesting ways of doing things; the first birds in the spring and their going in the fall, their nesting habits, dates when young birds and animals of various kinds are first noticed, the feeding habits of the wild life in the woods and their peculiar ways, the first wild flowers in spring, the first turning of the leaves in the fall. Do mountain lions scream, does the eagle nab an occasional lamb or fawn for his breakfast? Do snakes come from eggs like a chicken? All these and a thousand other equally interesting things are constantly observed and if noted down will in after years form one of the most interesting and valuable souvenirs of a busy life.

My own diary runs back for forty years or more. It's chuck full of notes about all sorts of things which nobody but myself will probably ever read. But to me it is a mine, a history, a treasure house of information which no money could buy or replace. Cultivate the diary and notebook habit, you young fellows in the Service, for it will pay big dividends as you grow older.

ANXIOUS

On the Bulletin Board in the hall of the Atlantic Building, 930 "F" Street, Washington, D. C., there is hanging a Panama hat. It is a very good Panama hat, showing little evidence of wear. On it is pinned a paper reading; "Abandoned in Room 704," and this is the significant thing about the mystery, 704 is the office of the Chief of Operation.

It has been suggested that the hat is (or was) owned by some wild hombre from the Districts who purchased this dudish headgear before coming to Washington and did not dare wear it back to the Land of Stetsons. Wolff from D. 1 and Haynie from Ogden have been here recently. Have they returned? Are there any hats or owners of hats missing in the Districts? Your Editor has a suspicion that this is all that remains of someone who asked The Chief of Operation for an allotment of funds.

WHAT HAPPENS TO YELLOW PINE SEED

Feeding experiments by Dr. Taylor have shown that six chipmunks per acre are capable of eating 92,000 yellow pine seeds in 64 days, if they were to live exclusively on this diet. This is about the production of 4 average seed trees in a fairly good seed year. Mantled ground squirrels have an even greater capacity. Mice and packrats also take their share. The tassel-eared squirrel has been known to remove practically the entire cone crop from yellow pine trees before the seeds are mature. Altogether these findings support earlier conclusions that in average years practically the entire seed crop may be consumed by rodent, and that it takes an exceptional year to produce enough to leave sufficient surplus for a good stand of seedlings.

Another investigation by Dr. Taylor proves the same point in a different way. Several small plots were screened so as to afford different degrees of protection, and all were sown with the same amount of yellow pine seed in the summer of 1925. Germination on the various plots was as follows:

Unprotected, accessible to stock, rodents and birds	2 seedlings

Protected from stock and rabbits, open to birds and smaller rodents.	5 seedlings
Protected from all mammals except those that might jump over a 3-foot fence or dig under, open to birds	89 "
Protected from stock and birds and all mammals but mice and chipmunks. Apparently the latter did not find their way into the plot	239 "
Protected from all higher vertebrates	269 "

While these experiments and observations leave no doubt that the smaller rodents retard reproduction by eating seed, yet there are also probabilities that they do a certain amount of good by stirring the soil and destroying insects. Whether their influence is mainly detrimental or beneficial can not be ascertained without further investigation. - T. 3 Investigative Report.

AS IT IS DONE IN CANADA

District of Algoma, at Thessalon, 30th of August, 1927.

"It is charged that he, on or about the 24th day of August, 1927, did throw or drop burning matches ... without extinguishing same, in contravention of the Forest Fire Prevention Act. ..."

After a long cross-examination the Judge summed up as follows:

"You might have stood a chance if you had not made up these false stories, the fact that you deliberately tried to mislead people in saying that you were acting as fire-ranger and was on your way to notify Mr. Green--the next damning thing, you saw a tourist start the fire by throwing out a cigar butt. You told those falsehoods in your attempt to cover up, that is practically enough, I think, to make valid conviction. I think the forests are in such dry condition now any person that would take any risk whatever would be doing a terrible act against the public. Hurford, I am quite satisfied you set this fire and I therefore impose a fine of $25.00 and costs and FORTY-FIVE DAYS IN JAIL:"

EXHIBITIONS AND EXPOSITIONS

When the Philadelphia Sesquicentennial Exhibition shut down there were many to say that the day of such exhibitions, or fairs, was over. The public, it was contended, knows so much of what is going on in the world through radio, the movie, and the illustrated daily, that it is too sophisticated to be drawn readily to a celebration like that in Philadelphia. At the Chicago World's Fair the Venetian gondolas and the Javanese village fascinated millions to whom they were entire novelties. Today every child has seen Javanese and Ceylonese villages on the screen and more romances than one in which the hero escapes the doge's headsman by lying in the bottom of a gondola as it drifts lazily along the Grand Canal. The reasoning is plausible but false.

By contrast a three weeks' exhibition which has just closed near Baltimore has been an amazing success--the Baltimore and Ohio celebration of the first century of its existence. Originally planned for two weeks, the "Fair of the Iron Horse" had to be extended for another week and it could have been extended indefinitely. Yet it was not advertised in New York and other cities. It was not opened by a great political light and baptized with fulsome oratory. There was no jazz, and there were no "barkers." One could spend money only for eatables, souvenirs, and soft drinks, there was no entrance fee, and the railroad charged only twenty-five cents for the round trip of sixteen miles from Baltimore and return. It was an exhibition frankly devoted to one purpose--the history of railroad transportation, and yet the place was crowded--on one weekday 81,000 persons jammed the trains from Baltimore until they suggested the New York subways. In two weeks 1,200,000 persons attended the exhibit. An entrance fee would not have deterred these crowds; they were extraordinarily intelligent and they were extraordinarily interested in what they saw. They were obviously familiar with the movies. Yet they stood many rows deep about the Indian village, and though doubtless many had seen the movie entitled "The Iron Horse" and in dozens of films had become familiar with the prairie schooner, they were fascinated by the real schooners and the Wells-Fargo stage that appeared in the pageant. The show succeeded because it was a good show, admirably put on. - "The Nation", October 26, 1927.

WHO IS (OR WAS) THE DADDY OF RANGE MANAGEMENT ON THE NATIONAL FORESTS?

By W. A. Dayton, Washington.

In the article, "Our Cooperators in Systematic Botany," in the Service Bulletin for September 19, I indicated that Dr. Coville was one of the fathers of range management and research. Dr. Coville, however, has properly called my attention to the fact that I failed to mention his "Forest Growth and Sheep Grazing," Div. of Forestry Bul. 15 (published in 1898) wherein detailed recommendations were made for permit and fee systems for sheep grazing on the forest "reserves"; also that, in the fall of 1897, he made by request a special report to the commissioner of the general land office embodying the gist of the printed recommendations referred to.

In this connection it is of interest to note that the Annual Report of the Commissioner of the General Land Office for the fiscal year ended June 30, 1898, contains this paragraph (p. 88) in the chapter on "The Public Forests" under the caption "Sheep grazing":

> "In conducting research on this subject great benefit has been derived from a report made during the year by the botanist of the Department of Agriculture, who, while engaged in an extended botanical exploration of the Pacific coast region during the summer of 1897, incidentally made observations regarding the effect of sheep grazing on forest growth in the Cascade Range Forest Reserve. As the result of these observations, the work of this office IN DEVISING A SCHEME OF OPERATION TO REGULATE THE MATTER OF GRAZING has been materially furthered, and with the increased appropriation now available it is hoped that during the coming season the practical work of regulating pasturing of all kinds within the reserves may be actively entered upon."

This seems to indicate that Dr. Coville was the originator of the range management idea on what are now the National Forests. If he had a predecessor it is hoped, in the interests of historical accuracy, that some one with the facts at his disposal will so inform us in these pages or elsewhere.

Dr. Coville tells me that Commissioner Binger Hermann of the General Land Office was the more eager to have his report and recommendations since he (Hermann) was between two fires,- the no-federal-interference program of the western politicians and stockmen on the one hand, and on the other the "keep the hoofed locusts off" attitude of many influential foresters and conservationists.

PROTECTION - AND NO WASTE.

Q. R. Craft, D-3

The refuse burner has long since ceased to burn at the George E. Breece mill in Albuquerque, and it is the objective of Col. Breece that "not even a shovelfull of sawdust be wasted." Fuelwood is transported by conveyor and distributed to the furnaces of the electric light plant with only the guidance of switches. To utilize slabs more fully in furnishing material for cantaloupe crates, two machines were designed and built in the company's shops. These take the bolts prepared in two sizes by the slasher, one saws them into slats and the other into end pieces of standard sizes. In the protection of their timber tracts measures have been adopted that meet requirements for logging National Forest timber. Logging locomotives and leaders have been equipped with oil-burners; two speeder patrols have been added; a 10,000 gallon tank car installed with 1,000 feet of fire hose; and each locomotive has sufficient hose to reach the limits of the right of way.

RAILWAY BOX CAR EXONERATED

In the past the lumber shipper has not been certain that lumber properly dried at his mill and shipped in box cars would reach the consignee in anything like the condition existing at the time of loading. However, an investigation recently completed by the Forest Products Laboratory has largely exonerated the railway box car of having a bad influence on lumber in transit. Careful before-and-after determinations of moisture content showed that lumber in transit in box cars from the Pacific Northwest to Chicago, even in the wet weather of late winter and early spring, neither gained nor lost enough moisture to affect the quality of the material. The findings of this investigation would not be expected to hold, of course, for lumber shipped in cars other than box cars, or in box cars having leaky roofs. - From Forest Products Laboratory News Note.

AMERICAN BISON (BISON AMERICANUS)

It has recently been brought to our attention that the Ninth Annual Report of the U. S. Geological and Geographical Survey of the territory embracing Colorado and part of adjacent territories, dated 1875, by F. V. Hayden, U. S. Geologist, contains some interesting accounts of the bison of that day. This publication is very valuable and very scarce and can not be secured through the regular sources. The report is replete with life history notes and comprises 145 pages of description of most interesting reading. - District 2.

NUMBER OF MAGAZINES PER FAMILY

Do you know where a lot of our forest product goes? Listen to the American Association of Advertisers. The average family with an income of $1,000 per year and less buys or takes 3 magazines. Those with incomes from one to two thousand 4.8, from two to five thousand 5.6, from five to ten thousand 14.22, from ten thousand up 6.8. Ye Editor takes two, from which you may or may not draw a correct conclusion.

WHEN IT APPEARS IN MILADY'S COAT:

Some of the trade names under which the lowly rabbit skin appears in the fur business are listed by the Biological Survey in Farmers' Bulletin 1519, issued by the United States Department of Agriculture. Baltic is prefixed to black fox, brown fox, leopard, lion, red fox, seal, tiger, and white fox; all being rabbit skins variously dyed and treated. Other rabbit furs appear as Arctic. Australian and bay seal, beaverette, chinchillete, cony, electric beaver, electric mole, electric seal, erminette, French chinchilla, meskin beaver, meskin ermine, meskin moline, meskin seal, minkony, sealette and sealine, squirrelette, squirreline, visionette, and others.

Everywhere in Montana and Idaho reproduction this spring on the big burns is extraordinarily prolific, the ground being literally covered with seedlings of all species. The 1925 seed crop was very poor and the '25 burns practically did not reproduce. The outlook this year is quite encouraging, however, as it is apparent that the '26 burns are going to seed up wherever there is any possible chance, owing to the combination of a good seed crop last fall and a wet spring. - From Minutes of D. 1 Committee Meeting.

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MAKING THEM LIKE IT.

By E. H. MacDaniels, D. 6.

In the Service Bulletin of March 28, 1927, Munger said something on "Rating Insurance Risks by Merit". Here is something more on the subject.

Apparently, the logging industry is very much like the rest of the country in some ways. It suspects that anything it gets for nothing is worth about what it costs.

Take advice, for instance. For many years the fire fighting agencies dealt it out in great quantities. They figured out to a couple of decimal points what starts forest fires; they doped out airtight fire prevention schemes and broadcast them under high pressure, and nothing much came of it. The best of their plans were enacted into law in Oregon and Washington and battalions of grim wardens and law enforcement men rolled out to tie knots in the careless logger's tail. The yardage of resinous smoke from burning logging works was reduced, but it was seldom that an inspector left a camp in a storm of applause. It was granted that his precautions were necessary, were reasonable, were what any prudent man should take to protect his business. Plenty of people welcomed them when they were applied to someone else. The fact remained that organized fire prevention was outside the usual practice. It was a financial burden and few liked to be compelled to provide it. Compliance in many cases was perfunctory. The law was not exactly evaded but the equipment was intended more for getting the inspector's O. K. than for keeping fires from starting.

Under these conditions logging camps were a poor place for insurance companies. When hazards are high, so are premiums. When premiums are high it may easily happen that many of the firms taking insurance are especially poor risks, which makes high losses, which results in higher premiums, and so on around again. If something had not been done about it, this great body of insurable values would have had to be abandoned by all except a few determined sports who are not afraid of the short end of a hard bet.

A start was made in the spring of 1926. Ninety-one insurance companies combined, forming the Logging Insurance Underwriters Association, for the purpose of underwriting felled timber and equipment in logging operations. An inspector, who knew the game, was appointed and proceeded to weed out the poor risks and improve the good ones. All risks must be approved by the inspector before they are accepted. Four classes of risks are recognized, each with its appropriate premium rate. These classes are determined by a number of factors, including topographic and climatic conditions, financial conditions, moral hazard, previous fire record, precautions to prevent fire, plans and facilities for fighting fires, exposure, and probability of fire spreading.

The following requirements must be complied with:

1. A fire watchman must be on duty at each donkey in the daytime.

2. A night watchman must remain at each "side" at least four hours after closing.

3. A patrolman must follow all trains during dry weather.

4. Area around donkeys must be wet down at least twice daily..

5. Wood burning donkeys and wood or coal burning locomotives must be equipped with spark arresters.

6. OIL BURNING LOCOMOTIVES MUST HAVE SPARK ARRESTERS.

7. Smoking must be restricted to certain designated places and notices posted conspicuously, telling exactly where these places are.

8. All snags more than fifteen feet high and within 150 ft. of donkeys must be cut.

9. When fuel other than oil is used ash pans should be inspected frequently.

10. Make adequate clearings around all camp buildings.

11. All debris should be cleared away from bridges.

12. All debris should be cleared away from donkeys.

13. All bridges should be supplied with water barrels and pails.

14. Some one in every operation should be made responsible in all matters pertaining to the fire hazard.

15. Every operation, unless specifically excepted, should have water tank car of not less than 7,000 gals. capacity, equipped with steam pump and not less than 700 ft. of hose.

16. Every operation, unless specifically excepted, should have at least one portable power pump.

17. A box of fire tools (as provided by law) should be kept at each "side".

18. All oil burning or gas donkeys should be equipped with a chemical fire extinguisher.

ALL BLASTING MUST BE DONE WITH ELECTRIC DETONATORS. WE ARE NOT LIABLE FOR LOSS CAUSED BY FIRES STARTED BY BLASTING WHEN FUSE IS USED.

ALL ACTIVE LOGGING SHOULD CEASE WHEN THE RELATIVE HUMIDITY IS BELOW 30%.

That is a tough list. If you don't believe it, try it on your own logging operation.

The base rate for this insurance is 50¢ per $100 insured value. If logging goes on during the dry season -- any part of April to October inclusive -- an additional charge of $3.40 is made for donkeys and pile drivers; $2.25 for trestles and culverts; $9.50 for cables, blocks, and all other tools and machinery, and $9.50 for felled timber. This is for Washington. Oregon is higher. That is the dry season clause. If a hygrothermograph or similar instrument is kept in good running order and the records filed, and all logging is stopped while the relative humidity is below 30 per cent, a substantial reduction is made from the dry season premium. That is the Humidity Warranty. By complete compliance with all regulations, it is possible to reduce the premium $5.00 or more per $100 insured value.

As the gratuitous suggestions of a too meddlesome government, these provisions are regarded with suspicion. Wrapping them up in a business agreement takes the curse off. No doubt it has occured to many that if these measures are good for a man when he is insured, they are equally good when he is not insured, but it doesn't seem to take hold in the same way.

For several reasons 1926 was not a profitable year for the Association; 1927 was better. More than $12,000,000 worth of property was insured and losses were in the neighborhood of $115,000. A very wild guess is that considerably more than 90 per cent of the logging camp values are not insured. If and when premium rates go down, insurance of logging camps may be expected to approximate that of other industries. As a matter of fact, rates are already lower for logging equipment and logs than for some other risks. The list shows base rates of $10 to $14 per

$100 insured for sash and door factories, box factories and other wood working plants, driers, flax mills, and powder mills. Gasoline and petroleum, paints, oils, and naval stores take base rates of $4.50 and lower. Fireworks stocks are $3.75.

Two-thirds of the total 1927 loss in D. 6 was from one slash fire. This fire was one of six that were set on the basis of a favorable weather report. Five of the fires were complete successes. One held over a day; the wind changed to the northeast; the humidity went down and the logs and donkeys went up. Wardens now find that they are held responsible for high premium rates as well as for high patrol rates.

It is the opinion of well-informed men in the protection agencies in the Pacific Northwest that logging camp insurance is putting more steam into fire protection in logging camps than anything else has done for some time.

TO TRADE OR NOT TO TRADE

The only means for acquiring private lands for National Forest purposes in the western National Forests is to grant National Forest stumpage or National Forest lands in exchange therefor. Financial considerations, national, state and county, place very definite limitations upon the quantity of stumpage that may be employed for exchanges. Under that limitation our progress in consolidation necessarily will be slow; more so than it perhaps should be. The only way consolidation can be speeded up is to employ National Forest land as an exchange medium.

Naturally we hate to give up heavily timbered land, or land with a high potential value for timber production, as that is exactly the kind of land which best serves the purposes for which the National Forests were created. To the contrary our fixed objective is to increase the acreage of that kind of land under National Forest management within the National Forests. So what kind of land are we prepared to give up? We would be willing of course, to trade off large areas of barren land, above timber line or elsewhere, but nobody wants it. We could trade off key tracts highly valuable for outdoor recreation or industrial uses but ordinarily it is not good public policy to do so. The one type of land that owners of timber productive land are eager to get and that consistently can be conveyed to private ownership is land more valuable for grazing than for timber production.

As a rule such land lies along or adjacent to the Forest boundaries so that its segregation is not difficult. It occurs most frequently at the lower limits of tree growth so that its cover is more apt to be brush than trees, or inferior trees rather than valuable ones. Ordinarily, it looks like a good trade.

But in such cases a conflict of the emotions almost always develops. The grazing enthusiast actually is torn between love and duty, and even the dispassionate, judicial mind of the Supervisor is harrowed by the thought of what the trade is going to do to his grazing receipts and plans of management. Men are reduced to a Dr. Jekyll and Mr. Hyde duality of thought and desire, with a desperate contest raging in their minds between Kid 300 Board Feet Annual Increment on the one hand and Battling Forage Acre on the other. Specialists whose mental poise and dignified and analytical modes of thought long have commanded the admiration of their associates have finally been laid to express grave doubts as to the wisdom of such exchanges. Like the historic assemblage of stock growers they have, figuratively, passed a resolution to the effect that "Something has to be done about it.". So the Branch of Lands in defense of its iniquitous practices, has been compelled to attempt to reduce the problem to a rule of reason, and here it is.

"The fundamental question at issue is whether we shall use nonforested grazing land as a means of increasing the acreage of true timber-producing land within the National Forests. The consensus of opinion hitherto has been that where it could be done without the arbitrary and inequitable elimination of grazing preferences established by permittees under our regulations, or where it would not result in complicating the use and management of the permanently retained National Forest lands, the exchange of nonforested land for timber-producing land was desirable and wholly in accord with the purposes and objectives of the National Forests. This principle theoretically is sound for the following reasons:

"1. Land exchange is not a surrender of ownership and control but a transfer from one property to another. As a general rule, the net result is to place a larger acreage under public regulations.

"2. The basic question, therefore, is that of the relative benefits the public will derive (a) by continuing present ownership or (b) by exchanging it for another ownership. Under our principles, a land exchange is never approved unless there is a concrete demonstration of distinct public benefit or advantage.

"3. This raises the question as to which is the most advantageous to the public, the ownership and control of forest land or the ownership and control of grazing land.

"4. Prima facie, the ownership and control of forest land is most advantageous. The lands in which we are interested are, as a rule, situated in a region where private forestry is most remote and improbable but where forest and watershed protection is most necessary and important and attainable only by unusual protective measures. It was in recognition of this fact that the National Forests were established with the primary legal functions of timber production and streamflow protection. Socially, economically, and as a National Forest objective forage production is secondary and supplemental.

"5. Because of the simplicity of its requirements and the currency of its financial returns, grazing management can be accomplished by private initiative as readily as by public initiative. There are too many concrete examples of this fact to make its denial supportable. One cannot form conclusions as to the impracticability of private range management on the basis of conditions on the unreserved and unregulated public ranges. Where certainty of tenure and control exsists, maximum forage production through the adoption of the best principles of range management can be secured under private ownership and frequently is. It, therefore, seems impossible to support a contention that proper range management is exclusively a public function or that it is socially or economically desirable that it be made an exclusive public function.

"6. There are only two conditions which militate against exchanges of grazing land for forest land - ONE, where a stable, local livestock industry, developed on the basis of National Forest preferences, would be disorganized by changes in the ownership of the ranges on which it depends, to the net detriment of the local community and, two, where relinquishment of public control over certain grazing land would militate against the best and most effective use and management of adjoining interrelated public properties.

"7. Excepting cases of the kind enumerated under paragraph 6, it would be most difficult to support the contention that if the United States had a choice between the ownership and proper management of an area of valuable timber producing land and an equal area of nonforested grazing land, it would be in the public interest to retain control of the grazing land, leaving the forest land to such protection as it would receive under prevailing or probable conditions of private ownership."

Grave doubts exsist as to the success of this effort, and the fellows out in the timber may find more holes in this argument than in Swiss cheese (in which event we hope they will take their pens in hand and point them out).

PERMISSION TO CONSTRUCT TRAMROAD UP MOUNT HOOD HELD IN ABEYANCE

Secretary W. M. Jardine, has postponed for a year action on the application for permission to construct a tramroad and cableway to the summit of Mount Hood, Oregon. During the year a thorough study of the potential public value of Mount Hood and the way in which this can be best conserved will be made by a representative committee.

Application to construct the tramroad and cableway was made some time ago to Col. W. B. Greeley. His decision was adverse to the project. An appeal was made to Secretary Jardine, who gave thorough consideration to the proposal, including an extended hearing at his office.

In the study of the mountain and its public use, Secretary Jardine hopes to secure the cooperation of the mountaineering, educational, and commercial organizations of Oregon, and of the National Conference on Outdoor Recreation. This conference was organized at the suggestion of President Coolidge to provide a means through which the outdoor and recreational agencies of the country could advise the Federal Government on such questions as the one pending.

Mount Hood, the Secretary points out, is one of the great peaks of the United States, and possesses much historic significance to the people of Oregon. Its educational as well as recreational service, he believes, will prove ultimately of great social importance. For that reason it is essential, in his judgement, that a sound course be followed in planning for the use of the National Forest lands which form the major part of the mountain.

If the investigations shows that the cableway as projected, or in modified form, is compatible with the best use of Mount Hood the Secretary will approve it. He is not prepared to act one way or the other until the facts have been clearly determined.

"GOOD LUCK CHARLIE!"

BY D. C. Ingram, D. 6

Early in April, 1906, a slim, wiry youngster with a Kentucky accent and a winning smile took the ranger examination at Prineville, Oregon. Passing the examination, Chas. S. Congleton ("Charlie", as he was known the country over), then 22 years of age, received his first appointment on the Blue Mts. (West) Forest Reserve as forest guard in the Forest Service on April 15, 1907, at $750 per annum.

On June 15, 1927, after exactly 20 years service (except for 3 months attending a ranger course at the University of Washington), Charlie resigned and retired to his ranch of 840 acres in the Ochoco country to enjoy his "whitefaces" and to be a real honest-to-goodness stockman.

The above gives little idea of Charlie's part in the making of the Blue Mountains-West (later Deschutes, and still later Ochoco) Forest history. The Supervisor's office had at the time of Charlie's advent in the Service just been established, the central feature of which was an old Oliver typewriter.

Charlie, coming from Kentucky and totally unfamiliar with western conditions, worked on stock ranches in the Paulina section before joining our "Pine Tree outfit". Being naturally quick, good natured, and energetic, he soon overcame any handicap due to ignorance of western conditions and unconsciously fitted himself for the work he was later to do in the Service.

Because of his natural aptitude for leadership, he was soon made a ranger-at-large, laying out the main trails in the Eastern Ochoco and being the leading light on the big "Deschutes" fire of 1908. At the early stock meetings, the wisdom of Solomon was necessary to determine equity. A pitifully small scale map was used, very crude and inaccurate as to topography, in an attempt to adjust equitably the range boundaries. The sheep man would run his finger over 4 to 8 townships on the map provided and with little idea of topography and less of proportion as pictured by the map attempt to outline his rights. Charlie did his part to bring order out of chaos; that Kentucky smile helped a lot.

When "June 11th" occupied the center of the stage, Charlie was selected as one of the "examiners" for the work. It was with considerable pride that brother members of the old "Deschutes" force received the first sample "June 11" report by Charlie, with a wee map of part of Charlie's choicest territory, sent out to the field as a guide to future June 11 examinations. Charlie would undoubtedly have made a specialty of Lands work but the lure of the open range and Charlie's old district, where grazing problems were of most importance, called and he begged to be sent back to his beloved Paulina. Here with his spare cash, Charlie purchased a stock ranch, adding to it from time to time and in his spare time developing it, until it and the "whitefaces" now require his full time.

May we all be as useful, serve as faithfully, and retire as gracefully as Charles S. Congleton, pioneer Ranger and stockman!

The Forest Products Office of the California District is being consolidated with the California Forest Experiment Station. This action is taken upon the request of Cary L. Hill, who has been in charge of the Forest Products Office, and with the consent of District Forester Show and Director Kotok. Mr. Hill has become the ranking member of Mr. Kotok's staff. The consolidation is a recognition of the fundamental relationship of silvicultural and forest products research and of the belief that day-to-day contact and association of the investigators concerned will help to insure the most effective correlation of the work. It is also a recognition of the gradual trend of the regional products work of the Forest Service toward a more direct aid to silvicultural practice on the National Forests and on privately-owned lands. - R. E. M.

FIRST COMMERCIAL FORESTRY CONFERENCE

The first commercial forestry conference was held at Congress Hotel, Chicago, November 16-17. The program lists the following subjects:

Opening address - "Getting Down to Brass Tacks in Forestry."
"Practicing Forestry Despite Handicaps
"Difficulties Met in Working for Sustained Yield"
"The Red Wood Policy"
"Supporting a Community by Forestry"
"Forestry and Naval Stores"
"Natural Reforestation for Pulpwood"
"Regional Progress in Forestry"
"The Goal in Forest Fire Protection"
"Progress, Possibilities, and Needs of Forest Fire Protection by Regions"
"Report of Committee on Forest Fire Insurance"
"Discussion of Committee Report"
"Why Adjusted Forest Taxation Is Necessary"
"Forest Tax Laws in Operation"
"Principles of Forest Taxation"
"Perpetual Production of Timber Requirements, and Stabilized Land Utilization"
"Importance and Possibilities of Sustained Yield"
"Commercial Practicability of Sustained Yield"
"The Role of Utilization in Forestry"
"How Are We to Obtain Fast Growth of The Right Kind of Timber?"
"How These Problems of Forestry Can be Met"
"Government and Industrial Research"

Colonel Greeley addressed the conference on "The National Aspects of Fire Protection."

The purpose of the conference is stated in the following program announcement:

"American business stands on the threshhold of a new industry - Commercial Forestry - the business of growing crops of timber by private enterprises.

"Many companies and individuals in every part of the United States are investigating the possibilities and practical application of forestry measures, and some have already taken steps to perpetuate individual wood-using industries. Important as these cases are, much more must be done to maintain regional and national timber supplies and to use profitably land otherwise unproductive.

"To arouse the interest of the public, to extend State and Federal cooperation, to stimulate and encourage forest owners, and to demonstrate the ability of private enterprise to handle its own responsibilities, the National Chamber of Commerce has called a Commercial Forestry Conference, - the first of its kind to be held in this country.

"The program is devoted to a frank discussion of the problems of forestry from a business point of view, especially those problems which hinder the extension of forestry - such as inadequate fire prevention, inequitable taxation systems and inadequate knowledge of technical methods and economic relationship.

"If you are a forest owner, if you use wood as a raw material, if your community depends upon forest industries, if you are interested in the forests, this conference directly concerns you, and a cordial invitation is extended to meet with us."

APACHE NEWS LETTER BUSTS INTO NEAR-FREE VERSE

With slight changes in the fauna and flora the following rhapsody from the Apache News Letter accurately describes October in Washington. Autumn sunshine is at least equal to a boost of salary in promoting morale:

"Indian summer is with us now, and it is one of those ideal seasons like the poets tell you about. Clear, cool days with frosty nights prevail. The cottonwoods and quaking aspens are shedding their leaves, now turned golden, and the squirrels and rats are busy storing away the bumper crop of pinons. Each week-end finds the woods full of kids gathering pinons to harass dear teacher the following week with the incessant cracking. Stockmen are busy rounding up and anxious to get the shipping over before snow flies. Fat steers, good prices, and beautiful weather are putting a smile on everyone's face."

WOODS PRACTICE ASSURES SUPPLY

Logging operations as now being practiced by the Clearwater Timber Company will leave sufficient young trees, 11 inches and under in diameter, to furnish another cut of merchantable timber by 1960, according to preliminary surveys made by the forestry school of the University of Idaho. Dean F. G. Miller, of the school, observes that the present practice of the company practically assures it a continuous supply of timber for its Lewiston mill, with its capacity of 200,000,000 board feet annually. The company owns 200,000 acres itself, in addition to which there are 125,000 owned by the State, an equal amount by individuals and corporations, and a large amount of Government timber lands in the Clearwater country tributary to Lewiston.

Horse logging is being practiced, a method which will aid in conserving young growth, and rail transportation to the mill will conduce to the elimination of waste in the utilization of timber products. The company began its logging operations a year ago last month in second growth white pine which is from 80 to 100 years old. It has been cutting better than 40,000 feet to the acre, and leaving everything under 12 inches. According to the school survey, 97 trees were left on each acre, on an average of which 30 per cent were white pine, 50 per cent white fir, 10 per cent cedar and the other 10 per cent Douglas fir, larch, lodgepole pine, and Engelmann spruce. - American Lumberman.

THE FOREST RANGER'S JOB

The lure of outdoor life brought twenty-six men here Tuesday from the plains country to take the Forest Ranger examination, states a press report from Alamogordo. Forty-one had applied. A man from Corpus Christi, Texas, drove all night arriving early Tuesday too tired to attempt the examination. Another coming from seventy-five miles south of Houston was delayed by a late train, got off at Pecos and hired a car to take him to the bus line at Carlsbad, in which he traveled all night, taking the examination here without having had breakfast. - D. 3 Daily Bulletin.

ROAD AND TRAIL CONSTRUCTION

By G. H. Lantz, Washington

During the past fiscal year there has been constructed a total of 1,370 miles of roads consisting of 292 miles of major highways and 1,078 miles of minor roadways. The road projects classified as major are those constructed by the Bureau of Public Roads while those built by the Forest Service are called minor. The former are State Highways and other roads where construction work is difficult; the latter are county, community, and development roads of simple construction. The amount expended upon all construction was $7,713,535. Of this, $6,787,656 was secured from Federal funds and the remainder $925,879 from local cooperative, State, and County funds. The average cost per mile of the roads thus constructed was $5,632 per mile, the major averaging $19,599 and the minor $1,856. During the same fiscal year 1927, there was expended $946,622 for the construction of 4,987 miles of trails, which averaged $190 per mile.

In addition to the construction work, roads and trails were maintained requiring an expenditure of $1,593,950 during the fiscal year. $1,182,961 was used for the maintenance of 14,594 miles of roads and $410,989 was used for the maintenance of 50,667 miles of trails.

To July 1, 1927, there had been completed a total of 13,219 miles of roads at a cost of $62,044,158. This represents an expenditure of $47,775,034 Federal funds and $14,269,124 cooperative funds. The trails constructed to July 1, 1927, amounted to 31,607 miles. The money for this work was composed of $6,060,964 Federal funds and $251,012 cooperative funds, totaling $6,311,976.

The total amount expended for all road and trail purposes, that is, construction, reconstruction, maintenance, surveys, administration, and equipment has to July 1, 1927, amounted to $79,601,464. Of this the Federal Government contributed $63,989,508 and the local cooperators $15,611,956.

AN INVITATION

The opinion has been expressed that if contributors were given the privilege of anonymous publishing of their articles in the BULLETIN, it might result in more contributions. There is, it was argued, a certain reluctance to take issue with those who happen to be in a little higher authority. Your editor was unable to conceive why such a consideration should deter the "seekers after truth." Neither was he able to secure a disclosure from the "pointers out" as to whether this was due to inherent courtesy or a canny prescience as to the probable effect on efficiency ratings. It is therefore credited to the former.

The BULLETIN is a perfectly proper place and the best one we have in which to present constructive ideas or invite discussion on moot questions or give constructive criticisms on any subject, and if an author believes it best for any reason not to publish his name, the editor hereby agrees not to do so. He would much prefer, however, to know who our contributors are even though their names are not to be used.
Yours for discussion, - Ed.

OUR P. R. IS EFFECTIVE

We have received various requests for permits but this is a new one on us, states Ranger Arnold in the Manzano Ranger. A family of Iowa tourists came to the station the other day and requested a permit to climb over the hills, stating they did not wish to build a campfire or cut any timber but just wanted to "climb around" for a while. D - 3 Daily Bulletin.

Service Bulletin

U.S. FOREST SERVICE

(Contents Confidential)

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THE 1927 FIRE SEASON

By Roy Headley, Washington

Some of the records and reports which are coming in on the 1927 fire season make one rub his eyes and pinch himself to be sure he is not merely dreaming of things as we would like them to be.

District 1, for example, sends in an analysis of large fires which was called for last spring by the Forester. This analysis shows that in District 1 only four fires went to 100 acres or over. Two of these originated on private lands and responsibility for action on them rested with other agencies and was taken by them. Two of the four fires are classified as due to failure of a cooperator. One is chargeable to delay in detection because the fire started in an unseen area; and one is put under the heading "Specific reason not apparent."

The District Forester says:

"Less area of National Forest was burned over in 1927 than in any other of the 20 years of D-1 fire record, although 7 other years had a smaller number of fires. Also, 1927 is the year of the smallest number and least percentage of class C fires. Out of the total of 1,050 fires, only 20, a little less than 2 per cent, reached class C size. The suppression expenditure was the smallest since 1923 when it was about the same, with but two-thirds as many fires handled and more than six times as much area burned over.

"The 1927 season was characterized by a late spring, better than average amount of distribution and amount of precipitation, and many violent electrical storms. The protective organization was never at any place severely taxed, although during the last 10 days in July and once or twice in August the forces on the Clearwater and Selway Forests were fully occupied with lightning fires. That there were times and places when fires called for prompt and vigorous attention is well indicated by the large ones which occurred."

In District 6 a heartbreaking disaster occurred on the Columbia, where 31,000 acres burned inside the National Forest boundary and this was practically all in old burns on which there was a growth of young stuff which has been the pride of every Forester who has watched the area since the creation of the Forest. But listen to the rest of the District 6 record as told by the District Forester in the 10-day fire report for the period ending October 10, 1927:

"The fire story on the Columbia this season should not cover up the remarkable results secured on many of the units. Five Forests having no Class C fires throughout the season, could qualify for an honor roll. They are, on the west side, Cascade, Santiam, and Umpqua; and the east side, Colville, and Ochoco. Five out of 22 National Forests is a mighty good percentage. Eleven of the Forests had less than 100 acres burned over. The Santiam, Cascade, and Ochoco topped the list with each less than 10 burned-over acres.

Man-caused fires decreased remarkably during the season. The Mount Baker and the Wallowa have the rather remarkable record of only two man-caused fires while the Colville is a close third with only three for the entire season. Costs on many of the Forests were low, but the Wallowa, Freemont, and Santiam, are outstanding examples, each costing $500 or lower in FF expenditures.

"Your attention is particularly called to three rather remarkable records. The Chelan had 115 fires of which only five were Class C, and a total of 386 National Forest acres burned. The Rainier reports 120 fires with only three Class C and 137 National Forest acres burned. The Wenatchee tops the list with 176 fires, three Class C, and only 350 National Forest Acres burned. Most of the fires on these three Forests were caused by the unusual electrical storms occurring in late July and early August. The records of the District do not show in any previous year such an outburst of lightning fires. Even with the help of a bit of rain and a reasonably favorable season the record on these Forests is believed an outstanding example of first-class fire control."

We have of course had an unusually favorable season, but the Forest Service would be unnecessarily modest if it were to ascribe the results in Districts 1 and 6 wholly to the favorable character of the season.

With the advantage of the relatively easy season of 1927 in which to consolidate our gains in organization and practice we are well on our way to new levels of accomplishment in fire control when the next bad year comes.

WHAT'S DOING IN COST ACCOUNTING

By L. T. Mahurin, Washington

The annual cost statement accounting for an expenditure of about 24 million dollars by the Forest Service in the fiscal year 1927 was mailed to the field offices November 5. Various stages of the report were finished in time for use of the figures in connection with the several phases of the appropriation estimates, the Littlefield report, taxation studies and the Forester's report.

This year, as an experiment, Executive Assistant Harley of the Coconino was detailed for a period of 6 weeks to assist in the compilation. The experiment proved very satisfactory and it is hoped that a similar detail may be made from some other District next year.

The cost figures this year gave effect to the distribution of indirect and overhead charges on a time basis, as has been advocated by field officers and others for some time. The results appear to justify the change, road and trail construction and maintenance activities thus being relieved of over a million dollars indirect and overhead charges which have quite generally been regarded heretofore as an inaccurate representation of facts. Other activities, of course, assumed these charges, timber sales and grazing administration particularly coming in for large increases.

As a progressive step in the determination of the possibilities of cost accounting as an aid to administration and financial control, a study course on cost accounting from a managerial standpoint is to be conducted this winter by Mr. Keplinger and will be participated in by administrative and accounting officers.

The course is designed to open up new avenues of thought, - new to the Service but of long standing use in other fields of business. Such matters as cost standards, investments, expense or cost as distinguished from expenditure, depreciation, principles underlying classification of accounts, etc., will come up for study. In short the more or less economic aspects of accounting will be given consideration in relation to Forest Service policies and business more than has heretofore been done. It is anticipated that the outgrowth will be a stabilization or fixation of the fundamental principles on which future progress in cost accounting may rest.

REPLY TO THE FORESTER'S OPEN LETTER

The Forester,
The United States Forest Service,
Washington, D. C.

Dear Sir:

We are grateful to you for the clarification of facts concerning the timber supply, the wisdom of liberal and efficient use of wood, and the need for systematic protection and replacement of the forests, contained in your letter of November 1.

We cordially concur in the statement which you have made in behalf of the United States Forest Service and in your view that the right rule is "to use wood and replace the forests." For, as you say, "the more wood is used the greater will be the incentive to grow wood." Otherwise indeed there will be substantially no incentive.

The interest of the forest and wood-using industries in forestry practice is fast increasing. Progress in that direction, already marked, will be encouraged and expedited by continued conference and cooperation between the timber industries and the agencies of the public.

Yours truly,

NATIONAL LUMBER MANUFACTURERS ASSOCIATION

/s/ WILSON COMPTON,
Secretary and Manager.

A SURE 'NUFF WILDERNESS OUTFIT

By Will C. Barnes, Washington

The Washington papers under date of November 9 carried an Associated Press item from Madison to the effect that Mr. Aldo Leopold, Associate Director of the Forest Products Laboratory, and Howard Weiss, formerly Director of the Laboratory but now in private work, were contemplating a raid on the wild life of western New Mexico.

The item went on to state that Mr. Leopold, who is known nationally as a game enthusiast and expert hunter, is making the present expedition armed only with bows and arrows, the purpose being to demonstrate the efficiency of that class of weapon. It is understood that both Leopold and Weiss, in anticipation of this trip, have been practising on local archery grounds in Madison and believe themselves capable of meeting anything from a porcupine to a grizzly bear.

A note in the District 3 bulletin states that it is their intention to penetrate into the big game area in the Datil and Gila National Forests. This is the country that Mr. Leopold believes should be one of the first to be established in the West as a purely wilderness area into which as little as possible of civilization should be allowed to penetrate, either on wheels, on foot, or by the air. The result of this expedition will be watched with interest.

In 1880, while with a troop of cavalry in this same country after a band of marauding Apaches, the commanding officer made the half dozen Apache Indian scouts with the command use bows and arrows for killing game for the party. At that time we were subsisting almost entirely on the country, and the firing of a rifle would warn the renegade Indians of our presence. The scouts were good hunters and we were seldom out of meat, mostly deer and turkey.

ONE WITNESS WINS AGAINST FIVE

On October 19 the Commissioner of the General Land Office rendered a very interesting decision sustaining the protest of the Forest Service against the issuance of patent to the Neihart Silver Mines Corporation for three lode claims in the Jefferson. Protest was for lack of development work. At the hearing the Government was represented by only one witness, since it was not possible in accordance with the usual practice to have at least two. The Government relied solely on the testimony of Chief Mineral Examiner McElroy. He was opposed by five witnesses, and counsel for claimant argued his case on the greater "probability of mistake or perjury on the part of the single Government witness" and of his motive to "somewhat extend himself," based on the theory that often field employees "consider that their continuance or standing with the Department depends on an activity which they deem may only be reflected by continual protests, and the protest having been made, the continued upholding of the same." The issue of veracity thus stated was accepted, and it was pointed out that the differences in the findings of Mr. McElroy and the leading witness for claimant were substantial and irreconcilable and could only be explained on the theory that the testimony of one or the other was wilfully false. The consistency of Mr. McElroy's testimony and the shocking inconsistencies in the opposing witness's testimony pointed out in a brief by the Assistant to the Solicitor resulted in a decision favorable to the Government. - District 1.

THE DEMOLAY FORESTS

By Julius F. Kummel, D. 6.

An agreement has recently been entered into with Washington chapters of the Order of DeMolay under which the DeMolay propose to contribute toward the cost of planting denuded areas on D-6 National Forests, the plantations thus established to be known as DeMolay forests. An initial contribution of over $700 was made this fall, and a plantation has been started on the Columbia Forest.

The DeMolay is a national order of young men from the age of 16 to 21, sponsored by and affiliated with the Masons. Largely through the leadership of one of their members, Ebert Rhodehamel of Spokane, the chapters in the State of Washington, embracing some 3,000 members, have interested themselves in forestry. Their object in engaging in planting work is threefold: to furnish its membership with the opportunity of concrete service in the task of providing a timber supply for the future; by their example, to stimulate interest in forestry and reforestation on the part of others, and, lastly, to establish a "living monument" of trees to typify the spirit and ideals of the Order. Funds for the first planting were raised by various stunts put on by the local chapters, such as dances, picnics, benefit shows, etc., and at the last annual state meeting it was decided to assess each member 10¢ annually to provide for continuing the plan in the future. The actual planting is done by the Forest Service and, of course, being on National Forest land, the plantation is the property of the Government, but all costs except overhead are paid by the DeMolay.

This is the first instance in this District where an outside agency has made a direct contribution toward planting work on the National Forests. Aside from the monetary value of the plantations thus established, it is believed that the movement possesses great possibilities in stimulating interest in forestry and reforestation. Already the Washington chapters are urging upon the national organization the adoption of the plan as a nation-wide undertaking for the Order of DeMolay.

THE FINEST MOUNTAIN CAMP IN THE WEST

By L. A. Barrett, D. 5.

The Big Pines Recreation Camp maintained by Los Angeles County in the Angeles National Forest was used during 1926 by 137,800 people and this year's figures will far surpass that record.

This camp, which is doubtless the finest in the West, embraces about 5,600 acres, some of which is owned by Los Angeles County while the larger portion is covered by a permit issued to the County in December, 1925, by the Secretary of Agriculture.

The camp lies at an elevation of 5,500 to 7,000 feet and is approximately 100 miles from Los Angeles either by way of Saugus or Cajon Canyon. It is equipped with a lodge, dance hall, cabins for 200 guests, branch county library, swimming pool, sanitary conveniences, tennis, croquet and volley ball courts, and children's playground. Stage lines operate to the camp from Los Angeles, and saddle horses and burros may be rented for trips to the higher mountains surrounding the camp.

For the convenience of the picnickers and campers, sufficient tables, benches and fireplaces have been installed to accommodate 12,000 to 15,000 people at one time. Large broilers and barbecue pits are available for large picnic parties.

Electricity lights all roads, trails, and camp grounds. Campers are charged 50 cents per day per car. Special rules and regulations are in force in this camp and the Superintendent, rangers, and employees are given the power and authority of deputy sheriffs for the purpose of enforcing the camp regulations.

In the improvement and maintenance of this one camp Los Angeles County spends about $60,000 annually, which is half again as much as is appropriated to the Forest Service for similar public service on all the public camps in all the 160 National Forests.

This fine camp is of incalculable value to the Angeles Forest as it has relieved the pressure to some extent on the always heavily used camps maintained by the Forest Service.

AXES DISCARDED ON ONE LOGGING OPERATION

By W. S. Mead, Deschutes.

After having watched the expert axemen of nearly every nationality do their stuff, on reproduction of all sizes, for a period of over 20 years, cutting out for landings, skid trails, cross hauls, truck roads, for bunching, and for every excuse known to loggers, it is a great relief and pleasure to see a logging operation conducted without cutting young trees.

On the new "cat" skidding operation on the Shevlin-Hixon Sale, Deschutes Forest, the only axes carried to the woods are by the fallers, the woodbuck and the brush pilers. Tractors are kept on well defined roads and logs are pulled under wheels by a line passing over a roller above axle of wheels to drum on rear of tractor. This method eliminates all slashing of reproduction and keeps destruction to a minimum.

THE EDITOR'S HIDE

That Ashley Arboretum article (Service Bulletin September 5, 1927), which, you may remember, was "panned" by Munger, is causing the Editor sleepless nights. Jones writes that the article as printed was appropriated from a news item and that in the original item a third classification was given of common names well established through usage. He also adds: "The original manuscript from which the substance of the article in the Service Bulletin was taken thoroughly indicates that Douglas fir is the standard common name for Pseudotsuga taxifolia, and this fact is fully recognized, but should there be further question concerning the possible connection between Pseudotsuga taxifolia and Red Pine kindly suggest reference to Sudworth's Check List, Page 282. Here the species has been indexed as "Red Pine" and again on page 28 mention is made that the name is in use in Utah, Idaho, and Colorado. Limited usage of the name is recognized therefore, even by our best authorities on species."

Nord of the Asley also jumps us in the following nice way, which niceness we do appreciate. "The special arranging of the item in the issue of September 5 paved the way for an awful jolt. Had you used the item especially prepared for the Bulletin the burden would have been lighter. As it is, the embarrassment on Jones and at least two of his fellowmen is tremendously heavy."

We have decided that we will not be believed and that it will probably get us nowhere to tell the truth about this, which is that We, the Editor, were in the field and had at the time the Bulletin went to press appointed a substitute (and a darn poor one) to pinch hit for us; so We hereby gracefully hang our hide on the fence, hoping that this action will satisfy Munger, and prevent other Western bad men from seeking us out with their multi-notched six guns. We cannot refrain, however, from calling Munger's attention to the article in this issue by A. R. Standing of the D-4 office.

TEN PERCENT ROAD FUND FOR F.Y. 1928

By G. H. Lantz, Washington.

Ten Percent of the Fiscal Year 1927 National Forest receipts as made available by law for the construction and maintenance of roads and trails within the National Forests amounted to $514,040.68. The total amount of the Ten Percent Fund thus far distributed to the States containing forests amounted to $6,116,580.60. Twenty-five percent of the receipts which are returned to the States containing National Forests for roads and schools amounted to $18,060,399.

The distribution of these funds among the various States is shown below.

State	10% Fiscal Year	10% Total	25% Fiscal Year	25% Total
Alabama	$ 84.44	$ 610.94	$ 211	$ 1,526
Alaska	16,772.58	133,175.77	41,931	353,053
Arizona	22,941.49	500,533.07	57,354	1,984,355
Arkansas	10,826.60	88,877.93	27,067	230,486
California	116,575.10	1,075,415.33	291,438	2,927,099
Colorado	40,237.77	551,399.80	100,594	1,618,777
Florida	3,058.91	28,591.10	7,647	73,564
Georgia	1,133.94	7,343.92	2,835	18,360
Idaho	54,521.28	714,567.86	136,303	2,051,516
Kansas	-	1,867.27	-	8,905
Kentucky	326.39	492.49	816	1,231
Maine	221.16	2,009.34	553	5,024
Maryland	55.05	55.05	138	138
Michigan	183.76	1,127.96	459	2,826
Minnesota	4,812.67	28,968.12	12,032	74,211
Montana	20,529.16	493,055.41	51,323	1,556,875
Nebraska	1,112.88	15,615.26	2,782	52,037
Nevada	9,377.99	139,292.79	23,445	399,725
New Hampshire	2,929.25	25,727.63	7,323	64,320
New Jersey	33.50	48.82	84	122
New Mexico	12,755.86	298,230.94	31,890	1,001,418
North Carolina	2,011.99	26,295.50	5,030	65,739
North Dakota	-	45.75	-	527
Oklahoma	575.06	7,817.81	1,438	21,807
Oregon	75,717.56	734,627.86	189,294	1,998,824
Pennsylvania	-46.10	247.28	-115	618
Porto Rico	-	3.70	-	-
South Carolina	363.62	1,268.24	909	3,171
South Dakota	11,569.92	123,980.11	28,925	359,059
Tennessee	1,413.27	14,384.67	3,533	35,960
Utah	18,649.70	320,654.58	46,624	957,948
Virginia	3,513.52	28,985.52	8,784	72,464
Washington	60,920.14	423,147.56	152,300	1,141,178
West Virginia	421.27	3,327.07	1,053	8,317
Wyoming	20,440.95	324,788.15	51,102	969,219
Total	514,040.68	6,116,580.60	1,285,102	18,060,399

THE "ASHLEY ABORETUM" ARTICLE DEFENDED

By A. R. Standing, D. 4.

No defense is being offered for the use of the common names in the "Ashley Aboretum" article. There is, however, something to be said in defense of the scientific names used. The incorrect spelling of angustifolia is a typographical error for which the author of the article is not to blame. All of the scientific names, with the exception of P. taxifolia, which is called P. mucronata, of the fourteen trees listed are the names used by Mr. Ivar Tidestrom in his book "Flora of Utah and Nevada", which has been released as an up-to-date, authentic, and official Flora of Utah and Nevada, containing the proper nomenclature for the plants of that region. Furthermore, all specimens of these trees that are sent to the Bureau of Plant Industry for formal identification are given the names listed in the "Ashley Arboretum" article, with the exception noted. Special letters from the Washington Office to District 4 have stated that Juniperus communis and Populus tremuloides do not grow in Utah, and that Juniperus sibirica and Populus aurea are species names, not variety names. Apparently there is good authority for the names used in the Ashley article.

Thus the need is for harmony in tree nomenclature between the Branch of Research or the Bureau of Plant Industry and the Check-List, Mr. Anonymous, merely used, in good faith, the names in a standard flora for the district about which he wrote.

CONCERNING THE BEGINNING OF THE GRAZING FEE SYSTEM

By W. A. Dayton, Washington

Despite the fine article by Mr. Barnes, "How the Grazing Fee Started," in the Service Bulletin for May 17, 1926, there seems still to be a strong impression in some quarters that fees were charged and collected for grazing livestock on what are now the National Forests prior to the transfer of those forests from the jurisdiction of the Interior Department to that of Agriculture. This impression was recently conveyed to the writer by a distinguished reviewer of one of our Forest Service bulletins. It appears also to have been shared by Dr. Arthur W. Sampson who, in discussing the subject of governmental regulation of National Forest grazing in his textbook, "Range and Pasture Management," says (on p. 27):

> "Following the establishment of a more liberal grazing policy ** the Federal Government, on June 4, 1897, was empowered to promulgate rules and regulations for the proper control of livestock. All grazing was THEN MADE SUBJECT TO THE ISSUANCE OF PERMITS, AND A SMALL FEE WAS DECIDED UPON FOR THE GRAZING PRIVILEGE. That method still obtains."

In his article above referred to Mr. Barnes quotes former Associate Forester A. L. Potter to the effect that "the first fee ever charged for grazing any kind of livestock upon the forest reserves" was a temporary fee of three cents per head for summer grazing in 1899 on forest reserves in Arizona. Mr. Potter then goes on to say that this fee was never collected by the Government inasmuch as legal officers of the Department of the Interior decided that there was no authority of law for the collection of such fees.

Mr. Kneipp tells me that no (collectible) fee was charged for grazing on the National Forests until January 1, 1906, and that it was this action which lead to the interesting events he so entertainingly describes in his "An Old Picture," published in the Service Bulletin for February 8, 1926. In his article, "Some Early History," in the Service Bulletin for June 20, 1927, Mr. Barnes idicates that it was only a little before this (1905) that the Attorney General rendered an opinion that the Secretary of Agriculture had legal authority to charge a fee for use or occupation of the "forest reserves."

RANGER SWITZER RETIRES

By S. A. Nash, Boulden, San Bernardino

Bert W. Switzer, Assistant Forest Ranger on the San Bernardino National Forest, has recently been retired from the Service because of ill health, the retirement being back-dated to April 30, 1927.

Mr. Switzer, born May 1, 1874, is a native of the State of Michigan, where in his youth he worked in logging camps. He came to California about the year 1900, obtaining work with the Brookings Lumber Company, logging at that time in the San Bernardino mountains.

Switzer entered the Forest Service in June, 1903, and was assigned to the Burnt Mill Ranger Station in the spring of 1904. He remained on this District practically until the time of his retirement. He took part in the "big fires" of 1911, 1914 and 1922.

Mr. Switzer saw our recreational development from its very inception of only a few camps or cabins to the thousands that are now in use. Lake Arrowhead was then a meadow where natural grass hay was cut. This lake (artificial reservoir) is now one of the finest recreational lakes in southern California.

Switzer has always been well liked by the many forest users and has made many friends. One of these in a spirit of good humor said of Switzer that he outlasted his saddle horse but was unable to stand the strain of the automobile.

EXIT-HOTCHKISS

Progress! Change! Decay! Another old friend of the Forest Service, one that for 20 years has held an honored place on all desks from Ranger to Forester, (maybe the latter-anyway we don't see how he could do business without it) promises to have the skids put under it and be cast into the scrap pile with Model T Fords and other such scrap iron. In Ranger's offices the old Hotchkiss stapler was about as standard as the Oliver - that too is going since Olivers are no longer made. Anyway recently the SDO sent us for trial a sleek, long, streamline model, shiny machine that right then and there displaced forever in our mind the old hay baler that needed a fifty pound blow to staple three sheets and jammed its ammunition on the slightest pretext. This new machine holds about 200 slender little wires, each of which when stapled takes up no more room in the files than an extra sheet of paper - it simply won't jam and a finger press puts it through a dozen sheets like the proverbial hot knife through butter. We'd tell the name of the new machine - only that would be free advertising. Anyway it's not yet available for distribution. This is merely an advance obituary of an old ex-friend. - D. 3 Daily Bulletin.

PRAIRIE DOG ERADICATION

Some rather interesting figures have been presented by Isaac Rogers of the Biological Survey who has been handling the prairie dog eradication work in cooperation with the Forest Service and stockmen on the Springerville, Picnic and Escudilla Allotments, according to the Apache News. Mr. Rogers states that they baited some 116,600 dog holes, which conservatively figuring two dogs to the hole would eliminate 233,200 dogs. He goes on to state that 240 prairie dogs consume as much forage as one cow. From this it is not hard to figure that next year forage sufficient for 971 cows will be conserved. The average rate of prairie dog infestation on the whole area worked on the above allotments was figured by Mr. Rogers to be six dogs to the acre. - District 3.

FOREST OFFICERS IN NEVADA TAKE NOTICE!

The Torrey Botanical Club Bulletin for October, just issued, contains the following advertisement: "Wanted. Herbarium specimens of LIMNORCHIS from Nevada, by purchase or exchange. Dr. H. M. Denslow, 175 Ninth Avenue, New York City." LIMNORCHIS is a genus of orchids which appears in Forest Service range plant records under tc name HABENARIA. -- W. A. D.

Service Bulletin

U.S. FOREST SERVICE
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MAJOR FRANK A. FENN HONORED

By Will C. Barnes, Washington

At its November meeting the United States Geographic Board honored the memory of a former Forest Service official, Major Frank A. Fenn, by naming for him a mountain in the Bitterroot range in northern Idaho. Fenn Mountain lies within the Selway Forest and is not far from the city of Kooskia, Idaho, in which Major Fenn spent the last years of his life. This action by the Board was in deference to a strong sentiment among Forest officers who knew him and felt that his services should be recognized and his memory honored by such action.

Major Fenn was born in 1854. His parents moved to Idaho when he was a mere child. Educated in the common schools of that State, his father secured for him an appointment to the Naval Academy at Annapolis. He spent three years in that institution but not finding the life of a naval officer quite to his liking resigned and returned to Idaho.

He studied law and was admitted to practice in the courts of Idaho. On the outbreak of the Spanish War he enlisted in the First Idaho Infantry and went to the Philippines with his regiment, where he served with credit to himself and the State. In those days the soldiers elected their officers and Fenn was unanimously elected Captain of Company H. Later while in the Islands he was promoted to be Major and held that rank until the regiment returned to this country. He was elected a member of the Idaho territorial legislature in 1887 and the first state legislature in 1890, serving with distinction in each. In 1896 he was elected for a third term being Speaker during the latter session.

In June, 1901, he was appointed Superintendent of Forest Reserves for Idaho. Later when the Forest Service was organized he was appointed Supervisor of the Sawtooth Forest and was stationed there during 1906 & 1907. From 1908 to 1915 he was successively Supervisor in charge of the Bitterroot, Clearwater, Selway, and Flathead Forests. In 1915 he became Assistant District Forester in charge of Lands. Owing to advancing years he retired May 21, 1920. He could not remain inactive, however, and purchased a daily paper in the town of Kooskia, Idaho, which he edited with his usual vigor and made it a strong factor in Idaho state politics. He also formed a partnership with his oldest son for the practice of law in Kooskia. Major Fenn believed wholeheartedly in the Forest Service and was always a strong friend and advocate of its plans and policies.

He died in Kooskia June 19, 1927

His youngest son, Homer, now a resident of California, was for many years Assistant District Forester in charge of Grazing in the Intermountain District at Ogden.

FLOODS ON THE WHITE MOUNTAIN

Supervisor Yarnall in a letter of November 8 to the District Forester has given a full and very interesting account of the recent flood in that section. We cannot publish the letter in full for lack of space, but are giving the following excerpts:

"I was finally able to work my way out of the flood stricken northern country by taking the Grand Trunk train at Shelbourne, N.H., and returning home via Portland, Dover, and the Lake Shore route. The following gives an account of the condition of the Forest as we now know it. At the beginning it must be realized that Northern New Hampshire and Vermont received the worst flood in its history and practically all of the White Mountain National Forest was in the severely flooded area, since south of the Forest they only received a portion of the enormous rainfall of further north. The rain started around five o'clock Wednesday afternoon, November 2, and continued throughout the night until 10:00 Thursday. Light showers occurred between then and 4:00 P.M. after which time the heavy rain again resumed and continued until 10:00 o'clock, November 4. In that time Hale's rain gauge at Gorham showed a fall of 6.22 inches and the Brown Company's rain gauge at Berlin 6.37 inches****

"We understand that it is possible to get through Profile Notch to Franconia at the present time. Pinkham Notch and Crawford Notch are blocked and it now looks as if they cannot be opened up until late next spring. Without an exact record of the number of bridges lost it is impossible to describe the actual damage on the main highways through the Forest. We do know that the first bridge on the Glen Road from Gorham is out and the channel of the river is twice as wide as it was before. The second bridge likewise has gone out and the third bridge, while in place, is badly undermined, at least on one abutment. The Dolly Copp Bridge is gone and undoubtedly the Dolly Copp Campground was seriously damaged.***** The bridge across Peabody River in the Town of Gorham is gone, but they are now putting in temporary bridges and within the next three or four days it will be possible for the people marooned in that area to drive out via Bethel.

"The bridges at Champney Falls Brook and Mill Brook on the Swift River Highway are out and there has been some very bad washes in that road. * * * * * We do not know the condition of the Swift River end of that road except there is a large part of the embankment washed away at the bridge across Swift River, and also bad washes at and near the Douglas Brook Bridge. * * * * * * * *

"The Wild River road undoubtedly suffered the greatest damage. The Larry Brook Bridge is out. A stretch of the road washed out above Larry Brook three years ago, and along which log cribbing was constructed, is also gone, together with the log bridge across Evans Brook. The piece of the road at and near the State line on the Wild River section is entirely washed away. Our road crew was working in Wild River and are marooned at Hastings Opening. * * * Temporary bridges at least will have to be put in at Larry Brook and across Evans Brook.* *

"The Woodstock end of the Swift River Road as far as Camp 3 came through without excessive damage. We lost one high fill below the Talford Brook Bridge, but Ranger Brown reports that practically no damage occurred to the big bridge. * * *

"The State has an enormous job in replacing the bridges and roads which were destroyed in this flood, and they are making a consistent effort to open up as many of the through roads as possible by means of temporary bridges and repairs." - Eastern District Digest

BUFFALO HUNT

Fifteen holders of Arizona hunting licenses have received permits to take part under State supervision in the first buffalo hunt ever held in this State. The American bison is not a native of Arizona, and those on which the closed season has been lifted were privately owned in House Rock Valley, Coconino County, until bought by the State two years ago, so that never before have they been considered open game.

The hunt probably will be held during the last week of November and the first week of December. Only outlaw bulls, elbowed out of the herd by younger and more ambitious rivals, will be shot. To each hunter will be allowed the head, hide, and 100 pounds of meat, probably from the forequarters. The remainder will be freighted out of the valley by truck and placed in cold storage by the State Game Department, to be held for a Christmas sale.

Proceeds of the sale will be devoted to payment of the $5,000 purchase price on one-half of the herd. To date, $4,000 has been paid, State Warden Pettis said yesterday, and the State holds an option on the remaining half, expiring with the year 1929. At the last count the full herd numbered 110 head.

In the current issue of the Nature Magazine, published by the American Nature Association and devoted to the practical conservation of the great natural resources of Arizona, Will C. Barnes, Assistant United States Forester, tells how the herd came to take up its habitat in Arizona.

"The originator of this herd was Charles J. Jones, nationally known as 'Buffalo Jones,' who realizing that the buffalo were fast disappearing, captured in the years from 1884 a number of buffalo calves out of herds then running in the vast open prairie region along the north fork of the Duro River in the Texas Panhandle.

"Jones took his captives to his ranch near Garden City, Kansas, and beginning with 57 captives, eventually raised a very good sized herd of buffalo ranging them with his domestic cattle.

"Financial reverses overtook Jones and he sold his herd, part in Montana and part to a Spaniard from California who owned a ranch near Monterey. Returning from an unsuccessful trip to Alaska, where he attempted to capture a bunch of musk oxen for domestication in the northern States, Jones fell in with an old time friend and pioneer, James Owens, who for several years had been a guide and park scout in the Yellowstone National Park.

"Between them the two old-timers conceived the idea of starting a great game preserve somewhere in the West and stocking it with big game animals, deer, elk, and buffalo, with the intention of selling hunting privileges at good stiff figures.

"In July, 1905, Jones unloaded at Lund, Utah, a small station on the then recently completed Salt Lake-Los Angeles railroad, two cars of buffalo. The exact number is a matter of dispute but there were between 30 and 40 head in the shipment. Those buffalo were shipped from Monterey, California, and oddly enough were a part of the identical buffalo shipped to that point from Garden City, Kansas, several years.

"The 15 or 30 buffalo left in the House Rock valley by Jones were purchased by two or three local cattlemen and have increased until recently they numbered more than 100 head. They are such a nuisance on the range, however, that frequent efforts have been made to drive them out of the country with herds of steers enroute to shipping points. Invariably the buffalo, after a few hours on the trail toward civilization, decided they liked House Rock Valley very well and, in spite of everything the cowboys could do to keep them with the steers, every single buffalo turned back to its favorite range." - From Arizona Republican, Nov. 7, 1927.

STIMULATING NEW IDEAS

An old professor, addressing a graduating class of teachers on the art of educating the young, wound up with the eloquent exhortation, "And whenever you see a spark of intelligence, water it!" The Pennsylvania railroad is going even further: it has established a Bureau of New Ideas to encourage suggestions from employees for improving the railroad. And what is more, President Atterbury asks employees for suggestions concerning not only their own departments but about any phase of railroad work.

"The management wants all employees to feel such a personal interest in the Company that they will always be on the lookout for ways and means of improving operations in all departments, on the road, in the shops, at stations, in yards, signal towers, offices, and elsewhere. A mechanic in a shop or a track man may have an excellent and original idea for getting new business, or a traffic solicitor may have a workable suggestion for greater economy in the use of materials and supplies."

The Forester recently pointed out that no important policy of the Service has ever been adopted without discussion by men of all grades. Probably the Service has no occasion for any artificial stimulant to promote the free give and take of new ideas. But the Pennsylvania railroad has given new emphasis to an important point: don't let the artificial lines between divisions or branches become actual physical barriers to friendly participation in the whole job. Such joint participation is necessary to the vitality of any organization and to the production of leaders. - W. S.

ROAD AND TRAIL SYSTEMS

By G. H. Lautz, Washington

The desired transportation system for the National Forests as planned for the next ten years includes a total of 51,268 miles of roads and 110,385 miles of trails, 83 per cent of the former and 98 per cent of the latter being located within the forest boundaries. The road system is composed of 15,068 miles of Forest Highways and 36,200 miles of Forest Development roads. Forest Highways are roads of primary importance to the states, counties, and communities while Forest development roads are those of primary importance for the protection, administration, and utilization of the Forests. Of the former, 75 per cent of the mileage is located within the Forest boundaries; 5,084 miles of the Forest Highways are now in satisfactory condition, 8,687 miles are passable but unsatisfactory, that is, require additional expenditure of funds, and 1,297 miles are non-existing, that is simply planned for future construction in locations where no roads are located at the present time. To reconstruct and complete the unsatisfactory and build the proposed forest highways there will be required a total of $123,916,067, or an expenditure of $12,411 per mile.

In the Forest Development system, 10,910 miles are considered satisfactory, 14,767 miles unsatisfactory, and 10,523 miles are non-existing. Eighty-seven per cent of the total mileage, 36,200 is within the boundaries of the Forests. $47,528,558 are estimated as required for the completion of this system, the average expenditure being at the rate of $1,879 per mile.

The roads of satisfactory standard included in the present system provide an average of 1.7 miles for each township within the National Forests and the unsatisfactory roads 2.3 miles per township. The proposed system will furnish to each township within the Forests an average of 5.4 miles of roadway. At the present time, of the 6,628 townships contained in the National Forests located in the western States, 33 per cent of the entire area are WHOLLY without roads. That is, 2,188 townships or 50,411,520 acres do not contain roads of any kind.

The Forest Trail system is at present composed of 73,431 miles of trails constructed to a satisfactory standard, 12,461 miles of unsatisfactory trails, and 24,493 miles of proposed. A further expenditure of $5,679,991 representing an average of $154 per mile will be required to complete the construction of the entire trail system as now planned.

The total amount required for the construction work as proposed upon both roads and trails, exclusive of maintenance work is therefore, $177,124,616.

"THE INDEPENDENT ORDER OF RANGERS"

Many rangers are independent, some very much so, but these particular ones in Tacoma were also known as the "Boy Rangers", being a sort of Boy Scout organization.

Supervisor Fenby of the Rainier Forest recently highly commended them and Secretary Jardine has written them (in part) as follows:

"The Forest Supervisor reports that a special permit was granted and that the lads patrolled one of the closed areas of the Forest during the present fire season. While so engaged they showed resourcefulness and an exceptional degree of endurance for boys so young, and acquired a knowledge of the trees, plants and birds common to the Forest, which will be of value to them later in life. They also learned proper methods of camp management, sanitation, and other necessary requirements of life in the woods.

"The Department takes pleasure in commending the worthy objects of the organization, conducing, as they do, to clean living, self reliance, and high ideals of service. The inspiration the lads receive now through the training given will serve to mould their lives into the best type of manhood and citizenship. Because of the experience they have had and doubtless will continue to have in activities such as they have been engaged in this summer we may anticipate that they will have so strong an interest in the National Forest work that the organization may be looked to for recruits to our regular Forest Ranger force.

"The Department extends its best wishes for the successful carrying out of the excellent policies the organization has inaugurated." - District 6.

NEW STATISTICAL BULLETIN

"American Forests and Forest Products" (Department of Agriculture Statistical Bulletin No. 21) is off the press and will be distributed at once. This bulletin, a joint compilation under the direction of Mr. Reynolds, rounds up under a single cover the forest statistics which we have found to be most in demand. Its tables have been compiled to show long time trends in the history of each important forest industry and to present the important facts regarding the extent and character of the forests of the United States. It is hoped that it will prove a valuable and convenient reference book for foresters, schools, associations, economic organizations, and, in short, anyone who has occasion to use statistics of American forests and forest products.

The original edition is for 9,000 copies, of which it is planned to reserve 4,000 to fill post card requests. Eight thousand cards were sent out to a carefully selected list, and it is significant that the returned requests already exceed this figure. A request for a reprint has already been made.

It is inevitable that some errors will be found in a compilation of this kind. The Office of Forest Economics will appreciate having these pointed out, constructive criticisms as to inclusion of other material, omission of material not useful, changes in forms of tables, and general arrangement, looking toward a revised edition within a a few years.

NOTES ON THE BEGINNINGS OF THE GRAZING PERMIT SYSTEM ON NATIONAL FOREST RANGES

By W. A. Dayton, Washington.

A few historical comments anent the above subject appear to be in order, to "tie in" to the writer's recent note: "Concerning the beginning of the grazing fee system."

The Act of June 4, 1897, "making appropriations for sundry civil expenses of the Government for the fiscal year ending June 30, 1898, and for other purposes," provided for the issuance by the Secretary of the Interior of such rules and regulations for the public forests and forest reservations "as will insure the objects of such reservations, namely, to regulate their occupancy and use and to preserve the forests thereon from destruction." Under this authority the Secretary of the Interior, on June 30, 1897, directed that "the pasturing of live stock on the public lands in forest reservations will not be interfered with so long as it appears that injury is not being done to the forest growth and the rights of others are not thereby jeopardized," but the grazing of sheep was prohibited except in Oregon and Washington. No charge was made at this time nor does it appear that any permit was required for such grazing.

In his Annual Report for the fiscal year ended June 30, 1899, Commissioner Binger Hermann of the General Land Office states that, after sending out letters to forest superintendents under date of September 16, 1898, applications for sheep-grazing privileges were received and permits for sheep-grazing were issued. Apparently the first permit was issued by Secretary E. A. Hitchcock July 25, 1899, and granted the application of P. L. Jewett for permission to drive 1500 to 2000 sheep over public lands in the Sierra Forest Reserve, California, to lands therein that he had leased from the Southern Pacific Railroad Company. Commissioner Hermann (p. 110) then makes the noteworthy recommendation that, "in all cases where sheep are allowed to enter the reserves the Secretary of the Interior should be authorized by law to make a reasonable charge therefor," and legal authority of this sort is embodied in legislative recommendations in future annual reports of that office.

In his Annual Report for the fiscal year 1903 Commissioner W. A. Richards of the General Land Office recommends the transfer of the administration of the forest reserves to the Department of Agriculture, renewing the recommendation in his 1904 report. The Forest Service, of course, was created February 1, 1905, when, by provision of an act of Congress, the Division of Forestry was transferred from the Interior to the Agriculture Department and there merged with the Bureau of Forestry.

BLUNT-POINTED NAILS HELP TO ELIMINATE SPLITTING OF MOP HANDLES

A relatively simple suggestion from the U. S. Forest Products Laboratory recently eliminated serious manufacturing difficulties reported by a maker of mops. The difficulty lay in the fact that splitting occurred when wire nails of requisite gauge were driven near the ends of mop handles as a part of the operation of attaching the metal parts. Following a suggestion received in correspondence with the Forest Products Laboratory, blunt-pointed nails were substituted for the sharp-pointed nails previously used, and splitting was almost entirely eliminated. In a test run of 1,200 handles only two were split and these were successfully re-nailed at a right angle to the plane of cleavage. In other tests the split handles amounted to only one-half of one per cent or less.

The reason for the reduction in splitting with the use of blunt-pointed nails is found in the fact that the blunt point cuts and breaks through the wood fibers instead of wedging them apart as does the sharper nail. The blunt nail has a fairly low resistance to withdrawal but in this respect it will probably stand comparison with a sharp nail which has caused splitting as it was driven. - Forest Products Laboratory News Note.

CHRISTMAS TREES

A report from the American Vice Consul at New Brunswick, Canada, says:

"Preparations are underway in New Brunswick for the annual cutting of Christmas trees for exportation to the United States.

"The Provincial Department of Lands and Mines has forbidden absolutely the cutting of Christmas trees from the Crown Lands of New Brunswick and the Forest Wardens have been instructed to prevent the cutting and, if cutting has been carried on, the railway officials have been notified to refuse to pass the shipment.

"The Provincial authorities have no control over the cutting on granted or privately owned forest lands, so that the exportation of Christmas trees from New Brunswick during the present season will be entirely from privately owned lands.

"The owners of private lands state

that the Christmas tree trade is profitable and not injurious to the forest lands as the trees reproduce rapidly and a second cutting can be made within a few years; whereas if the trees were left standing they become worthless.

"On the other hand Forestry Officials claim that the Christmas tree trade causes heavy loss to the forest wealth of the Province, especially when the tops are cut off good trees to secure symmetrical Christmas trees.

"Nevertheless, it is evident that there will be an appreciable increase in the number of Christmas trees cut and exported from New Brunswick, because of the embargo on the exportation of Christmas trees from the State of Maine.

"The moth which is reported to have attacked the spruce and fir trees in the State of Maine has not appeared in the New Brunswick forests."

OUTLAW ACTIVE ON THE ASHLEY

An auto thief, after stealing a car in Colorado, attempted to cross the Uintah mountains into Wyoming via the Vernal-Manila road, but got on the wrong road and went to Trout Creek R. S. where he robbed the station of two guns and ammunition, shovels, axes, hammer, pliers, ten-day food supply, dishes, shaving outfit, toilet articles and even one set of quadrat straps.

Ranger Glen Lambert arrived at the station in the evening of October 13, soon after the robbery had been committed. After reporting it to the sheriff's office at Vernal he left by saddle horse to track the car toward Vernal. About 2 a.m. the morning of the 14th, about 20 miles from the station the car was located parked a short distance from the road. Ranger Lambert was dubious about approaching the car as he knew that the thief was armed while he had nothing in the way of firearms, so hurried to the nearest telephone and notified the sheriff. Just before entering the valley at 3 a.m. he met a stranger on horseback carrying a heavy article in a sack, which he later learned was a milk can full of gasoline which had been drained from two cars in the valley. Ranger Lambert stopped the man and questioned him concerning his travels at that hour and was convinced from the answers received that he was the man he was looking for.

The sheriff and two deputies picked up Ranger Lambert along the road and they returned toward the parked car, but it was found that it had left its place of concealment and gone back toward the mountains, apparently seeking an outlet without returning to the settlement. The posse followed the tracks and met the car returning, apparently having come to the end of a side road and being forced to turn back. When the desperado was ordered to stop he resisted by firing two shots at the sheriff's party and escaped in the car under a rain of bullets from the posse. The car was followed to the valley and found abandoned next morning. The bandit escaped by stealing a horse from the vicinity of the abandoned car and riding back over the Taylor Mt. road to Trout Creek R. S. where he exchanged it for Ranger Lambert's horse and proceeded toward Wyoming. At a point near Sheep Creek he abandoned the Ranger's horse, which was later recovered near Manila, to take a secluded route into Wyoming on foot. The last report is that the outlaw is at large in Wyoming with authorities of Sweetwater County on his trail.

All articles taken have been recovered except a government revolver.- Ashley News Letter.

THE UNUSUAL HAPPENS ON THE OUACHITA

On the first of October, the closing day of the Scott County Fair, the Scott County Land and Lumber Company paraded a large float on a truck and trailer through the streets of Waldron. There was a thirty foot pine log on each side of the truck while on top was a small model saw mill being operated by hand.

After the float reached the main part of town it was used as a platform for Lee Bethel, local mill foreman and Judge W. A.

Bates of Waldron who gave stirring speeches on forestry and what it means to the people of Scott County.

Two Forest Officers watched breathlessly from the sidelines, since the exhibition had not been solicited by the Forest Service, but came as a distinct surprise. Furthermore, in a country where woods-burning has only recently ceased to be a necessity to the settler and where trees 6" DBH are still being cut for saw logs, an exhibition of this sort is exhilarating, to say the least. Perhaps, at last, the sun is beginning to peep through the fog and our PR work is beginning to show concrete results in other ways than improved fire records. - D. 7 Digest

BLISTER RUST IN OREGON NOW

On September 17, L. N. Gooding, of the Office of Blister Rust Control, discovered blister rust on a wild currant bush on Eagle Creek, on the Mount Hood Forest, about a mile above the camp grounds. This is the first time that the rust has been discovered in Oregon anywhere near white pine, or anywhere south of the Puget Sound region in the vicinity of white pine stands. There were at least two previous discoveries in Oregon but both on the Coast. Probably the spores blew in from infected areas to the north, the relatively moist conditions of 1926 being conducive to the spread of the disease. What the possible consequences of the Eagle Creek infection may be it is hard to say; there may be hundreds of other infected spots in the Mount Hood region now, and if this is the case, it is not beyond the realms of possibility that Blister Rust might spread on western white pine down the Cascades to the sugar pine stands and on south into California.-District 6.

"STEPPING OUT"

Trees "step out" after their neighbors are cut down, and five yellow pine trees with an average spacing of 18 feet will produce more lumber than 10 trees on the same area, but only five feet apart, according to Clarke Miles, Junior Forester, at the Boise and Payette National Forests conference which was recently held at Cascade. A horizontal section of a tree trunk shows an immediate increase in annual growth after neighboring trees are cut, and the trees left on the cut-over area are said to "step out", meaning to grow faster. This increased rate of growth slows down after fifty years.

Experiments show that an average tree produced 402 board feet of lumber in the decade following the removal of trees which were crowding it, as compared with producing only fifty-three board feet in the decade prior to the cutting. - D. 4 Daily News.

SUPERVISORS' MEETING

During the period October 24 to November 2, a Supervisors' Meeting was held in D-2 on the San Isabel and Pike Forests, the principal objective being a study of the correlation of recreational uses with other forest activities. The details of recreation unit planning, roadside marking and the construction of sanitation and fire prevention improvements as well as all policies in regard to the allocation of lands to recreational use were gone into. One day was allotted to the study of a timber sale and a day was also spent in the study of a fire that had occurred in the vicinity. - District 2.

A NEW FOREST

The President by Executive Order of November 10 designated the western division of the Florida National Forest as the Choctawhatchee National Forest. The area of the former Florida Forest is now comprised of two separate National Forests: the Ocala National Forest and the Choctawhatchee National Forest. For the time being, both of these National Forests will be administered by the Forest Supervisor, stationed at Pensacola, Florida.

Service Bulletin

U.S. FOREST SERVICE
(Contents Confidential)

VOL. XI. No. 50. WASHINGTON, D. C. DECEMBER 12, 1927.

PERSONNEL PROBLEMS

By W. W. Stockberger

(As Director of Personnel and Business Administration of the Department of Agriculture Dr. Stockberger has an intimate knowledge of the many problems of administration which are foremost in the minds of the personnel of the Department. The following is an abridgment of a highly interesting and instructive address on efficiency ratings, promotions, and the practical workings of the Classification Act of 1923 delivered by Dr. Stockberger at a family meeting of the Forest Service in the auditorium of the New National Museum in Washington on November 2, 1927.)

EFFICIENCY RATINGS

Much effort has been spent in the last twenty years in efforts to perfect systems of efficiency ratings. So much difficulty has been experienced in securing accurate ratings that many administrators despair of their usefulness, and prefer to trust the judgment of superior officials. On the other hand these officials must use some kind of a standard in evaluating the usefulness of their subordinates and every effort should be made to eliminate irrelevant items from their judgement and to objectify so far as possible their conclusions. No one is satisfied with results thus far achieved but the more optimistic hope to press forward to a plan which will record the relative efficiency of employees with substantial accuracy.

The problem of measuring efficiency varies enormously from the comparisons of relative output in lines of work where it can be accurately counted, such as the operation of a punch card machine, to the highest forms of administrative leadership. Quantity of output is not measurable in the supervisory positions at all, and many times equally immeasurable among the rank and file. Quality of output is seldom subject to any accurate measurement in the public service. This is the fundamental weakness which lies at the root of the difficulty in securing accurate ratings.

Some employees have been needlessly disturbed because their efficiency ratings were not as high as they thought they should be, or because they sometimes receive a slightly lower rating than they had previously attained. Congress has prescribed that the average of the salaries of employees in each classification grade shall not exceed the average rate of that grade and our efficiency rating system provides for the normal distribution of the ratings from 65 to 100 with the average at 82.5. It is a matter of little moment whether the rating be 87 or 90 or 92; the real points about which there should be concern are, first, the relative rank in the grade which the rating gives, and, second, whether the rating establishes eligibility for a higher salary rate than the one received. If the mark is so low as to render the employee ineligible for a higher salary rate it is naturally a cause of dissatisfaction and the rating officer or the board of review is apt to be charged with unfairness, favoritism, prejudice, or discrimination in favor of others. In the vast majority of cases such charges are groundless and result from an all too frequent tendency to evade any personal responsibility for one's own lack of progress. If one's efficiency rating is relatively low why not be frank with one's self and seek to correct the situation by applying the remedy to the real source of trouble?

If a motorist driving in a mountain country should observe that the water in the car's radiator was boiling, the engine laboring heavily, and the other drivers were easily passing him on steep grades, to what would he ascribe his difficulties? Would he say the hills were too steep and should be cut down; that the speed limit for other cars should be reduced to the rate at which his car could go; or that the weather was too hot for the engine to perform efficiently? He would do none of these things, but he would draw up at the roadside and examine the mechanism of the car to find what was wrong. Much useless worry and nervous wear and tear could be avoided if clear recognition were given the fact that the primary causes which determine satisfactory personal progress as well as the lack of such progress are to be found in the individual himself.

PROMOTION

More than almost anything else people desire the approval of their associates. To a large extent this desire determines conduct; it not only inhibits the tendency to do those things which are generally regarded as unbecoming or reprehensible but also supplies a definite and important stimulus to useful effort. In an administrative organization approval or appreciation of effort which results in a broader and more useful service normally becomes tangible in the form of promotion or advancement. Promotion, which is assignment to a higher position with more exacting and responsible duties, should be clearly distinguished from advancement which is an increase in compensation granted for efficient and meritorious service without change of assignment.

There are four possible bases of promotion, namely, seniority, efficiency ratings, competitive examination, and official discretion. Promotion based on seniority naturally commends itself to the older rather than the younger group of employees. The objections to reliance on seniority alone are that it takes no account of the young and exceptional employees who ought to be advanced rapidly for the good of the service, and that it gives preferment to employees whose usefulness may have been impaired by reason of age or physical infirmity. Competitive promotional examinations relate to vacancies to be filled and not to increased compensation for meritorious service when there is no change in the assignment of duties.

Promotions based solely on official discretion were advocated by a former Secretary of one of the executive departments who said, "It is not believed that any sort of mechanical or self-operative method of promotion could be devised, or any set of rules established, which could possibly take the place of the discretion, fairness, and knowledge of the chief of bureau." While this probably represents the normal view of the higher administrators, it probably does not represent the view of the rank and file who believe that certain definite checks or limitations at least should be set upon official discretion.

No one of the four bases of promotion just mentioned are universally or solely applicable. A combination of two or more gives the most satisfactory results and is the practice generally followed in this department. It places responsibility clearly and it largely retains that responsibility within the bureau where it should rest.

In this department there is no lack of opportunity for promotion to higher grades for those who are fitted for assuming greater responsibilities. During the calendar year 1926, 468 employees, or more than 10 per cent were promoted to higher grades, and of this number 301 received at the same time an increase in salary. Within the restrictions under which the Department must operate such as amount of available funds, the limitation by Congress on the amount that may be expended for personal services in the District of Columbia, and the so-called "average clause" in the Appropriation Act, productive workers have reasonable opportunities for advancement in rate of pay. At the two semi-annual salary adjustment periods in the calendar year 1926, the salaries of 33 per cent of the employees in Washington were increased, and during the present calendar year 42 per cent of the employees have received increases.

(To be continued in December 19 issue)

UTAH CONGRESSMAN GIVES VIEWS ON MANAGEMENT OF BIG GRAZING AREAS

At the Kiwanis convention in Idaho Falls this past summer Congressman Colton of Utah spoke on the management of public range. Some of his remarks are given herewith.

"We are now using timber about three times as fast as it is growing. The people of the United States have been aroused to the necessity of protecting their timber, but we seem very slow in awaking to the fact that we are dissipating the great asset of public grazing.

"In my State alone more than 2,000,000 sheep and about 600,000 cattle annually harvest the forage from the public domain. It is no one's business to protect or make this area produce to the limit of its capacity. Much of it is now being injured and its future value is repeatedly diminished. The wealth of the State is diminished correspondingly. Livestock is the third largest industry in the State. Eighty per cent of the food of this livestock is gathered annually from the public domain. This is largely true in the State of Idaho.

"It will be seen that the grazing industry depends upon the central mountain section as a joint unit, and ignores almost completely the question of State boundary lines. As you know, there is considerable migration, especially in the case of sheep, from ranges in various parts of Utah, Idaho, Wyoming, Nevada and even as far as Oregon, to the winter ranges in southern and eastern Utah. This very suggestion indicates that the problem is a complicated one, particularly when it comes to handling such things as taxation

"Taking for granted that some system of control is necessary if we are to preserve the great asset of public grazing, this brings us to the consideration of the best way to handle the problem. Some have suggested that these lands should be turned to the State and could be handled better on a State basis. This would require the establishment of some system analagous to the system already in operation on the National Forests in each State.

"If the work of this supervision were entrusted to the United States Forest Service, all of the overhead would be avoided and $60,000 would probably cover the additional cost of that department of supervising the public domain in Utah. The Forest Service administration could easily transfer many of its rangers during the winter time to take charge of the districts on the public domain. Since these men already are employed full time, there would be no additional expenses in this respect. In other words, the Forest Service could administer the public domain within my State for almost one-half of what it would cost another."

PILFERING OR PHILANTHROPY

(or, Pine Seed vs. Peanuts)

Last year there were but two pine

squirrels left in the District. All the others were starved out by the Chief of Planting with his crews of cone cache robbers. That's the summing up of such statements as: "You can't expect the squirrels to continue gathering cones indefinitely when you swipe their winter's hoard every year"; "No wonder there aren't any squirrels this year; what would they live on after you cleaned up on the caches?" From an old-timer: "These woods used to be full of squirrels and when they were cutting, cones fell so thick and fast it was unsafe to walk around in the timber without a helmet," etc.

As the villain in this drama I have at times felt the part I played. It is only natural that I should seek consolation in excuses and whatever temporizing justified the means for the end.

This fall, while pilfering a cache, the owner crouched within four feet of me and scolded the whole while. I felt guilty. I told him to shut up; I was leaving all the lodgepole cones and white fir; and anyway this was for scientific purposes, which excuses all actions. Another time I gathered a sack of white pine cones when the owner was absent. He met me, however, on the trail and followed me for a mile chattering something scandalous all the way. I promised to bring back a whole bunch of little pine trees that would grow his food when the rest of the Kaniksu had burned. - D. S. Olson, D. 1 Bulletin.

BETTER THAN JAIL

W. G. Weigle, Supervisor of the Snoqualmie Forest, last night announced the carrying out of the most unusual sentence ever imposed for violation of the law regarding forest fires in National Forests.

Arthur E. Corrock, letter carrier, 1133 West Kenyon Street, lover of the great outdoors, who inadvertently started a fire on Mount Pilchuck, in the Snoqualmie Forest, last August, has just finished planting 100 trees along the new Pacific Highway, about midway between Seattle and Everett - the penalty imposed by Justice of the Peace Carpenter of Granite Falls, who found Corrock guilty.

Weigle selected the place for the tree-planting, under the terms of the sentence. The supervisor inspected the trees Corrock set out, and yesterday reported to the justice of the peace that the penalty had been paid in full, and satisfactorily.

Corrock was perched on the topmost rock of Mount Pilchuck last August, drinking in the scenery and smoking a pipe. In fact, so grand was the spectacle that Corrock stayed there and smoked several pipes, knocking the ashes on his heel before each refilling.

Still awed - still filled with the grandeur of the view, he walked away, forgetting that the hot ashes of his pipe might start a fire - which they did. Rangers spotted the blaze very soon afterwards, put it out, and traced it to Corrock.

The damage was not great.

Corrock was taken before Justice of the Peace Carpenter. He was out of patience with himself for being so negligent and grieved over the loss. He wanted to do the right thing in reparation, he said. The Rangers and the Judge felt he ought to be allowed to make atonement in the way that was finally agreed to by all parties.

And so, while the Snoqualmie Forest is a few trees poorer, the Pacific Highway is 100 trees richer - and Weigle hopes the lesson will be brought home to everybody. -(From Post-Intelligencer, Seattle, Wash., Nov. 19, 1927)

(J. D. G. in submitting this article says: "This has your Canadian fire story in Service Bulletin of 11-14-27 beat a block!" We agree with him. - Ed.)

THE WHOLE IS EQUAL TO THE SUM OF ITS PARTS

By John H. Hatton, D. 2.

For a long time in our grazing administration we felt we knew the answers to our general problems and questions, and we could all answer them about alike. For instance, we knew, in an abstract way, that too early grazing would be injurious to forage just starting. We knew that too many stock would overgraze. We first thought that sheep and cattle couldn't graze together. We knew that distribution was an important problem, and that salting would help to control it. We knew that certain improvements to effect better control were necessary. In general terms, we knew the short-cut answers to all these questions, but we were not getting down to cases. We were not tying to the unit in question the detailed steps or reasoning by which the right answer or Q.E.D. would be reached.

There is no question but a lot of progress was made in our grazing administration by these general methods but we were dealing with conditions in the mass more than by component parts. So we began to stress specific activities. We began to project things more in grazing.

First was the salting question, and the bedding-out system of handling sheep -- the putting of salt plans on a map as a starter and public discussions as well as field demonstrations about the better handling of sheep. Considerable was accomplished by this but still we were far from all-round progressive range management.

Then, along about 1924 we stressed the idea that any innovations or new methods in range or livestock management, to succeed and endure, must meet in the final analysis the acid test of practical economy. We needed supporting facts to show that the method or methods we desired to install would be to the users' economic advantage and business interests. And we began to assemble and disperse figures along this line. We felt that it behooved us to substitute for our general observations and demands concrete data and facts. We probably accomplished something with this but I have always been dissapointed in the total results. A few Forests submitted figures and these were widely used and disseminated, but we found stockmen were not used to keeping figures and we didn't seem to have time to direct them in the collection of them. We didn't get enough backyard -- close to home -- data. "Figger or fail" was a slogan put out when the livestock business was at low ebb a few years ago. "Fortify yourself with knowledge or facts before plunging into an enter prise" became a part of every day preachment. I have been somewhat dissapointed, as stated, in the collection of economic facts. I think we will come back to that idea again as we tie our grazing administration more closely to the ground through the medium of unit management plans and as we record the benefits, both range and economic, that better administration through definite planning and plans will bring.

The unit plan idea is, we believe, the answer to the question: "How can we improve our grazing administration?" The parts that make up the whole are thus presented in the form of current local objectives and everyday working tools. Nothing applicable to the unit in question is overlooked. Not only the direct but the indirect factors in range management (the bearing upon other resources, etc.) are thought of and put down whether they show a negative or positive relation. They present the best we know and what can be put into application for the time being and give us a foundation upon which to grow or build. The very concentration of the field upon the idea is going to improve vastly our grazing management. I'm not so much concerned about the form of plan just so it is simple and workable and applicable to the unit under consideration; and is tied to the principles of Reg. G-12 which fully sets forth, to my mind, our policies and broader objectives in National Forest range management.

"The whole is equal to the sum of its parts" The unit plan sets forth the parts which constitute the objective or whole.- Clipped from D. 2 Bulletin.

COMMITTEE REPORTS ON AGRICULTURAL SITUATION

At the forty-first annual convention of the Association of Land Grant Colleges and Universities, which was held at Chicago November 15 to 17, a report of the agricultural situation was submitted by a special committee appointed for the purpose by the executive committee of the Association.

This report strongly urges, as part of a general plan for making better use of land resources, that the policy of reforesting certain types of land area should be continued and enlarged, and that the use of marginal and sub-marginal agricultural areas for growing timber should be encouraged. It also opposes the use of interest-free money by the Federal Government in reclaiming arid lands by reclamation, swamp lands by drainage, or cut-over lands by clearing, upon the grounds that such activities are disadvantageous to established farms.

The report deals with public grazing lands briefly but pointedly as follows:

"CONTROL OF" GRAZING LANDS: Semi-arid and arid pasture lands now included in the public domain amount to approximately 141,000,000 acres. They furnish a large part of the feed used in supporting the range livestock industry. For a considerable proportion of this area, it is desirable that measures be adopted which will regulate the utilization of these lands to the best interests of both the livestock industry and the general public. There should be a system of grazing control for the public domain outside of the National Forests, comparable with and unified with that now in force on the National Forests". - E. A. S.

FIRST MAN TO SEE CANYON

By Will C. Barnes, Washington.

The D-3 bulletin quotes an item from "The Earth," the Santa Fe Railroad Company's house organ, to the effect that the hotel at the Grand Canyon in Arizona was named El Tovar "after the first European to see it, one Captain Pedro Tovar." One wonders why the Santa Fe people persist in perpetuating this historical inaccuracy.

Nearly thirty years ago when that company took over the so-called railroad to the Canyon and announced the building of a hotel on its rim, to be called "El Tovar," their attention was called to the error and the suggestion made that in the interest of facts and history the name of their house at Trinidad, "Cardenas," be changed to Tovar and the former name given to the proposed house at the Canyon. The change was not made, however, for reasons best known to the railroad people.

The historical facts are that Cardenas another of Coronado's captains, was the real discoverer of the Canyon and not Tovar. There are several historical references to the fact. (History of Arizona, Farish, p. 23, Spanish Pioneers, Johnson, p. 328) One quotation should suffice to prove its truth:

Bancroft's History of Arizona, page 47, footnote:

"In August 1540 Captain Tobar with a small force * * * was sent to explore the Cebola country, especially the province of Tusayan. They found the Moki villages and the Indians mentioned a great river several days journey to the north in which lived a nation of very tall men. Thereupon Don Pedro returned and reported to the General. Then Captain Cardenas was sent with 12 men to seek the great river and the tall men.

"Cardenas marched north and west for 20 days and FOUND THE RIVER. He spent 5 or 6 days trying to get down the precipitous banks but could find no place to descend."

"This," remarks Bancroft, "was the first visit of Europeans to the Great Canyon of the Colorado."

The written history even gives the names of the two adventurous soldiers in Cardenas party who spent a day trying to reach the river and returned at night worn out and announced it as impossible.

At this time, 1540 and 1541, Coronado with his army was somewhere in northeastern Arizona, working his way eastward, seeking some reported native villages where the inhabitants had gold and precious stones galore. He found only the Pueblo Indians, a peaceful agricultural folk who knew nothing of metals and whose only precious stone was the sky blue turquoise - a product of the region.

The famous "Narrative" of Casteneda, the historian of Coronado's journey through the Southwest, is authentic and accepted by all writers as reliable. Bancroft's quotation is from that "Narrative."

The hotel on the rim of the Grand Canyon should have been called "Cardenas" if it was desired to honor the memory of the real first discoverer of the Canyon.

RECRUITING OUR CLERICAL FORCE

T. V. Pearson recently spent several days in Salt Lake City discussing with the heads of the business colleges the needs of the Forest Service in the way of stenographers and general clerical help. The heads of these colleges point with considerable pride to the young men and women whom they have placed with the Forest Service and who are successful in our work. However, they state that it is very difficult to retain young men and women students under instruction until they are thoroughly accomplished, because they seem to find employment before their schooling is completed. This early employment many times pays only small salaries, but the students seem to want to rush out into the active business world. Eight or nine male stenographers outside the schools were interviewed regarding Forest Service work and considerable interest was mainifested by them. From information secured on this trip, it is believed that the problems of securing competent clerical help will be somewhat simpler from now on. - D. 4 Daily News.

INTENSIVE SPECIAL USE

Big Creek, on the Sierra, is the center of activity for the construction work on the great projects of the Southern California Edison Company. In addition to the Company buildings covered by the power license there are the following:

Special use permits	110
Approximate acres covered by special uses	30
Approximate annual receipts	$3,500
Average annual rental per acre	115

In Big Creek are all the conveniences found in most towns; elsewhere of the same size, including a water and electric distribution system. In addition to residences there are under permit, school, theatre, stores, garages, post office, laundry, pool hall, hotel, photograph gallery, etc.

The summer population of Big Creek has been around 1,000 and there are over 100 pupils in the public school. The latter, incidentally, is the only free permit here. - L. A. B., D-5.

A SUGGESTION

Motion pictures are used occasionally to promote better relations between towns and the farm territories surrounding them. For example, the Office of Motion Pictures of the Department reports that the business men's club of Centerville, Tenn., raised a fund to pay the actual expenses of a theater that agreed to run a free show of films furnished by the Department on two Saturday afternoons each month. "The theater," the report says, "was glad of the chance to bring new people through its doors. The merchants benefited from the larger number of people who came to town. The county agent extended his contracts. The farmers learned something useful." - From Official Record.

GRAZING MEN OF STATE MEET TO SOLVE PROBLEMS

A cross-section of Utah's citizenship met Thursday at the Newhouse Hotel to consider the formation of a proposed federal law to regulate grazing and preserve the grazing value of the public domain, now said to be in the process of rapid dissipation.

A committee on control of public domain was organized last August 20 with Professor William Peterson, Director of the Extension Service of the Utah Agricultural college, Chairman, and M. S. Winder, of the Utah State Farm Bureau, Secretary.

The meeting Thursday resulted from an invitation to each county of the State to send one farmer, one sheep raiser, one cattle raiser, and one citizen not engaged directly in agriculture to a general conference to be held in Salt Lake at the time of the State fair.

Present at the meeting were Senator William H. King and Congressman Don B. Colton.

A practical experiment showed that on a regulated and restored tract of land, twice as many sheep can be grazed on one-third the area required of unregulated land. The desire of all present is to secure regulation of the public grazing land of Western States and it is generally accepted in principle that this shall be done by the Federal Government. - From "The Deseret News" of 10-6-27.

CONSERVATION BY PRESERVATION

The preservation treatment of wood to prevent decay has been more than tripled in the last twenty years, but there is yet much to be done along this line. It is imperative that foresters and the consumers of timber and wood products consider wood preservation as an asset in the big problem of conservation and utilization of our timber supply.

The one big means of bringing this subject to the attention of the public and in particular to the timber users, such as railroad, coal and clay mining companies, farmers, contractors, carpenters, etc., should be a thorough and well organized plan of publicity. This Department is well versed in the art and has through its corps of 3,000 Forest Fire Wardens a wonderful organization for the dissemination of information. We have unquestionably brought the need of forest protection to the front, we have sold the need for increased tree planting and with the use of suitable literature, pamphlets, and posters, we can sell the need for a more extensive use of preservative treated timber. - From Penn. Dept. of Forest and Waters Service Letter.

COLORADO HERDER BREAKS RECORD OF LAMB CROPS

With a 135 per cent lamb crop out of 1,000 ewes for the season, Alma Crowther is believed to have established a record. Although this has been a season of unusual lamb crops, none equal this mark. Nineteen of the 1,000 ewes bore triplets; 435, twins, and only 50 were dry. Crowther obtained an average of eleven pounds of wool a sheep, compared with a general average of five to six pounds. The first year he began culling his ewes he got an average wool yield of eight pounds. Marketing every crop on his large farm through sheep, Crowther has reduced his business to a science, culling his flock and breeding only to highest type of rams. - District 3.

A MAGNIFICENT GIFT!

A deed of gift is now in process of execution by the Wheeler and Dusenbury Lumber Co., for twenty acres of virgin white pine and hemlock in the "Heart's Content Forest" located in Warren County, Pennsylvania, within the boundaries of the Allegheny National Forest.

This is one of the last remaining stands of virgin timber in the eastern states and this gift, through the generosity of the donors, will insure the preservation of this small bit of magnificent old timber. D-7 Digest.

Service Bulletin

U.S. FOREST SERVICE
(Contents Confidential)

VOL. XI. No. 51 WASHINGTON, D. C. December 19, 1927.

Holly and mistletoe at Christmas time remind us of the forest. To me they bring in addition, countless pleasant memories of Forest Service firesides and of our great Forest Service family. I rejoice in the happy fortune which has made me a member of it. I rejoice in its earnestness and sincerity, and in the bonds of public service which bind it together, however widely scattered we are.

May the holly and mistletoe of the coming Christmas bring us all pleasant memories of each other. To every one of you I wish a Merry Christmas and a Prosperous and Happy New Year.

W B Greeley

AIR PATROL MAIL DELIVERY

By W. G. Weigle, Snoqualmie.

On account of the large number of lightning fires along the Cascade Mountains during the month of August, the airplanes stationed at Sand Point Field, Seattle, were very busy, and they did a lot of good spotting fires in the back country. The Snoqualmie Forest, as a rule almost free from lightning fires, had this season more than fifty going at the same time.

On August 22 our genial pilot Lieut. L. C. Goldsmith and Asst. Supervisor L. A. Treen started out to look over some of the back country of the Snoqualmie not well covered by the lookouts. As they flew around over the north end of the Forest, they passed by the Mt. Pugh Lookout. This observation point is located on a narrow rock pinnacle on the summit of Mt. Pugh 7,150 feet in altitude. Inasmuch as the valley floor, or Sauk River valley, at this point has an altitude of less than 1000 feet, it makes a very respectable mountain.

Treen and Goldsmith circled the lookout house three times, each time coming closer to it. Otto Seyb, the lookout man, looked on with admiration and awe at the first and second circle But when the big bird made a third circle as he neared the lookout house Otto had sensations peculiar to the day the black faced blond bear stood up in front of him. His fear, however, soon turned to great admiration and pleasure when a well-directed throw from the plane landed the morning Seattle Post-Intelligencer and the latest Saturday Evening Post within fifty feet of his front door. The level area on the summit is so small that had the papers dropped 50 feet in any other direction, they would have fallen a thousand feet or more down the mountain. Otto is a topnotcher lookout man and has been on Mt. Pugh for five years, and now since he gets his mail delivered at his door, he is thinking of getting married and making Mt. Pugh his future home.

One of the boys asked Treen whether he threw the papers, but he remarked, "No, indeed, I was too busy holding on."

KAIBAB DEER SHIPPED TO MEDICINE BOW FOREST

Citizens of Laramie and Cheyenne, Wyoming, have contributed funds to pay the cost of trapping, crating, and shipping fawns to the Pole Mountain district of the Medicine Bow. This district, formerly known as the Fort D. A. Russell Target and Maneuver Reservation, was turned over to the Forest Service in 1925. It is also a federal game and fish refuge. During the last year the cities of Cheyenne and Laramie and the counties of Albany and Laramie have become interested in the timber-growing and recreational possibilities of the region. Several thousand dollars were contributed by these agencies for the maintenance and construction of roads in the district.

Recently, the interest of the people was aroused in building up the supply of game animals and birds in the refuge. Funds totaling approximately one thousand dollars were contributed to bring in twenty trapped fawns from the Kaibab Forest. Because of a poor season for trapping, only nine head were sent to Laramie. One died soon after arrival due to injuries received in shipping. The other eight fawns were taken in trucks to a portion of the district where browse and other feed was very plentiful and where draws and large rock outcrops gave ample protection. There was practically no snow on the area at the time and when liberated most of the fawns disappeared into the aspen and timber growth, hardly stopping to look one way or another. One or two bolted from the crates, then stopped suddenly to look over the situation, apparently overcome by the abundance of feed compared with that in the Kaibab country. A small bunch of deer is now found in the locality, and it is hoped that the fawns will attach themselves to the herd for protection. Forest Ranger Conley started a poisoning campaign sometime ago which has already considerably reduced the number of coyotes. - Medicine Bow.

HIGH GRADE TREE SEED FROM SOUTHWESTERN DISTRICT.

A shipment of western yellow pine and Douglas fir seed has just been made from the Lincoln National Forest for reforestation in Germany, to Dr. C. Alvin Schenck, who states that seed of these species from that locality produces sturdier planting stock than seed from regions where rainfall is heavier. The theory seems to be that seed produced in a dry situation stores more plant food in anticipation of the vivissitudes the forthcoming seedling must endure. Relative freedom from frost last year and good rains the past summer have contributed to a good tree seed year generally in Arizona and New Mexico. - District 3.

PERSONNEL PROBLEMS

By W. W. Stockberger

(Continued from December 12 issue)

There appears to be a belief current among certain groups of employees that the "higher ups" receive practically all the increases in pay, and that the scientific employees are unduly favored at the expense of the clerical workers. Now, what are the facts in the case? At the last semi-annual salary adjustment on July 1, 1927, the professional and scientific employees received 43 percent and the clerical employees 41 percent of the total increase granted. The remaining 16 per cent was divided between the sub-professional and custodial grades. Of the increase in the professional and scientific service 51 per cent went to the first three grades, and of the increase in the Clerical, Administrative, and Fiscal service 70 per cent went to grades one to five inclusive. As to the number of increases, 31.3 per cent of the professional employees, 24.5 per cent of the sub-professional employees, 27.6 per cent of the clerical employees, and 17.5 per cent of the custodial employees were advanced in salary.

We may also look at this question of opportunity for advancement from an entirely different point of view. At the end of the calendar year 1926 there were 606 employees on the Washington rolls who had been in the service for twenty years or more. In 1906 the average salary of this group was $1178 and in 1926 it was $2815, an increase of 138 percent. Of this increase 49 per cent occurred from 1906 to 1916 and 89 per cent from 1917 to 1926, showing that the average salary of this group has increased in the last ten years twice as fast as in the preceding decade. There was also on the rolls in 1926 a group of 331 employees who entered the service in 1917 at salaries which averaged $1065. In 1926 the average salary was $2127, which represents an increase of 99 percent in ten years. A third group of 226 employees who entered the service in 1921 at salaries averaging $1316, had reached an average of $1902 in 1926, an increase of 44.5 per cent in five years.

Thus far averages only have been dealt with; it will now be interesting to consider the fortunes of some individuals who were on an equal salary basis at the beginning of the periods under discussion. In the professional and scientific group that has had twenty or more years of service there are 34 employees each of whom was receiving a salary of $1200 in 1906. The lowest salary received by an individual of this group in 1926 was $2400, an increase of 100 per cent, and the highest salary was $5600, an increase of 365 per cent. There were four at $3000, four at $3800, and three at $5200 with the others distributed with fair regularity over the intervening salary rates. In the clerical group that has had twenty or more years of service there are thirty-seven employees each of whom was receiving a salary of $720 in 1906. The lowest salary received by any one in this group in 1926 was $1260, an increase of 75 per cent, and the highest salary was $3200, an increase of 341 per cent. Nine of these employees were receiving salaries of $2000 or more. Various reasons are frequently given for this unequal distribution over the salary scale of those who were on a parity in 1906, some of them plausible and others highly improbable. Relative age, at least for the professional group, does not appear to be a factor of much importance since the average age of the professional employees now receiving salaries ranging from $2400 to $3000 is the same as the average age of those receiving more than $3000. In the clerical group the average age of employees now receiving less than $2000 is five years in excess of the average age of those receiving more than $2000. These facts are interesting so far as these two small groups are concerned, but the number of cases studied is far too small to permit drawing any general conclusion on this point. It is evident that there must be some definite reasons for such great inequalities in the progress of employees over a period of years. The most important apparently are:

(1) Education and training

(2) Social intelligence

(3) The accident of circumstance

In the group of thirty-four professional employees there is a pronounced correlation between educational attainment and the grade of the position now held, which is clearly shown by the following distribution of academic degrees by the grades to which employees are now allocated:

Professional 2:

No degree	1	
Bachelor's degree	5	
Master's "	2	8

Professional 3:

No degree	2	
Bachelor's degree	8	
Master's "	2	12

Professional 4:

Bachelor's degree	2	
Master's "	1	
Doctor's "	6	9

Proffessional 5:

Doctor's degree	5	5
		34

For the whole group the percentage of each degree status is:

No degree	8.8 per cent
Bachelor's degree	44.1 "
Master's "	14.7 "
Doctor's "	32.3 "

The general term "intelligence" has been humorously defined as the relative amount of dumbness a person possesses, but as a factor in personal progress there is something in addition to this that largely determines success or failure. This may be called "social intelligence" -- that group of personality traits which determines the conduct of the individual in his relations to and contacts with his fellow men. These are comprised in what has been called the Decalogue of Friendship. It is this:

> Deny yourself what people call personal satisfaction, i. e.: do not go around with a chip on your shoulder. Do not defend things that should not be defended. Be tolerant. Be square. Don't go around with a long face and a head full of trouble. Look for the good things, not the faults. Be big enough to admit and admire the abilities of other people. Put yourself out to be obliging. Let people know that you like them. Be sincere.

Ability to get along with other people is a factor of the utmost importance. If we can recognize shortcomings in that respect ourselves, it means we have it in our power to correct this handicap and if we do not do it, the fault for failure to be promoted and recognized rests entirely upon our own shoulders.

The accident of circumstance, the third important factor, may be explained in this way. There are in an office two sections. In one there may be little change, or possibly no change and therefore no opportunity. In the other section something happens. The head retires or leaves for other situations and so makes an opportunity for another employee in that section. That is what I mean by the accident of circumstance.

CLASSIFICATION

When the Classification Act became effective July 1, 1924, there were 4,589 employees of the Department in Washington who came under its provisions. Of this number 1,515, or 33 per cent received no increase in compensation as a result of the act, except employees who were receiving the bonus which at that time was automatically made a part of their salaries. The percentage of employees who received no increase in compensation, by services is as follows:

Professional	285	26 per cent
Sub-professional	201	38.5 per cent
Clerical	631	27.6 per cent
Custodial	398	58.1 per cent

During the calendar year 1926 the Department submitted to the classification Board 1615 requests for the allocation of positions. Of these 1465 were new positions or changes in duties, and 97.6 per cent of these requests were approved. One hundred and fifty appeals were also submitted of which ninety or 60 per cent were approved.

ETHER CARRIES FORESTRY LESSON

By C. E. Randall, Washington.

Radio listeners in 30 States who tuned their dials to the proper wave length on October 31 heard coming in over the air their first lesson in the U. S. Radio Farm School's course in forestry for the current season.

Mr. Jordan, Department expert, and Jim Stevens, farmer, were doing the talking. They were having a farmers' club meeting in the school-house (supposedly), and there was some lively discussion.

"Oh, I never think of woods being part of a farm business - leastwise, not an important part," Jim Stevens was saying as the conversation came over the ether.

"Iv'e known many like you, Stevens," Jordan was telling him. "They often have forty or fifty acres of woods. They never seem to think of handling the woods as a crop. Too often the woods itself is just a chance, imperfect reforestation of land that was cleared and cultivated for a few years before being abandoned."

"You're just about right on that, Mr. Jordan," Stevens agreed.

This theoretical schoolhouse meeting was broadcast from 50 stations in 30 States, which are regularly delivering the Department's Farm School Programs to radio "customers."

Seven lessons are scheduled in the farm forestry course this winter, the remaining lessons to come on December 12, January 16, February 27, March 12, April 9 and April 16. The first lesson prepared by G. H. Collingwood of the Washington office, was introductory. It put to the farmers the general proposition of farm woodlands and their value. In subsequent lessons, the "expert" will get right down to brass tacks - tell the farm woodland owners how to do things.

The Department of Agriculture Radio Service is reported as widely popular with the farm listeners. A total of 117 representative commercial and agricultural college radio stations are now using one or more of the 11 programs regularly prepared by the Department. Besides the U. S. Radio Farm School, the Forest Service comes in on several other programs, including the Young Folks Tales, and the Noon Farm Flashes, the latter featuring answers to questions and choice bits of practical information.

HIGHWAY COMPANY DONATES TOLL ROAD

On December 2, 1927, the Secretary of Agriculture accepted the donation by the Pikes Peak Auto Highway Company, of Colorado Springs, Colorado, of approximately 545 acres of land within the Pike National Forest and all right, title and interest the Company has in the toll road, and appurtenant structures, which reaches to the summit of Pikes Peak. This grant to the United States was made on condition that the Company should be allowed to operate the toll road under the present toll charges until December 31, 1935, and that during that period no competing road should be allowed to the summit of Pikes Peak.

The Pikes Peak road was originally constructed under a permit issued by the Secretary of Agriculture on June 25, 1915. Under that permit the Company was authorized to make a toll charge for using the road. The grant now made will eventually put the road in such condition that it may be operated as a free public road as a part of the highway system of the State of Colorado.

TWENTY-SEVENTH ANNUAL MEETING

The Twenty-Seventh Annual Meeting of the Society of American Foresters will be held at San Francisco December 16-19.

A trip to the redwoods near Scotia and Eureka on December 18 and 19 is promised the visitors and the lady guests of the Society will be entertained on December 16 at tea at Dr. Meinecke's house, following a sightseeing trip of the city.

On December 15, the day before the Society meeting begins, there will be a national conference on forest schools.

The program on the meeting follows:

Address of welcome by Dr. E. P. Meinecke and response by President R. Y. Stuart.

Industrial and commercial growth of the countries bordering the Pacific Ocean and their increasing dependence upon the natural resources of the western United States - President Ray Lyman Wilbur, Stanford University.

The role of western wood production in supplying the future markets of the nation and the world - Wilson Compton, Manager, National Lumber Manufacturers' Association.

A forest program for the West from the point of view of national needs - C. M. Granger, District Forester, D-6.

Industrial forestry in the California pine region; what is being done; what should foresters do about it? - S. B. Show, District Forester, D-5.

Forest land management by private owners in the Douglas fir region; present tendencies, obstacles to forestry practice, and suggested remedies - C. S. Chapman, Forester, Weyerhaeser Timber Co.

Industrial forestry in the white pine region of northern Idaho; its progress and difficulties - C. L. Billings, Assistant Manager, Clearwater Timber Co.

The redwoods: what factors favor or retard the practice of forestry in the Douglas fir and white pine regions, in comparison with the redwood region? - David T. Mason, Forest Engineer, Mason & Stevens.

Industrial forestry in the South and the West compared: what lessons can each teach the other? - J. B. Woods, Forester, Long-Bell Lumber Co.

How National Forest administrative policy affects industrial forestry; cooperative relationships, timber cutting policy, management plans - E. T. Allen, Forest Economist, Western Forestry & Conservation Association.

Summary and outlook for industrial forestry - Walter Mulford, Division of Forestry, University of California.

Forests as a factor in the circulation of water on the earth's surface - Raphael Zon, Director, Lake States Forest Experiment Station.

SAN FRANCISCO BAY REGION ONCE FORESTED

A couple of quarts of carbonized cones buried in the sand and half a dozen logs projecting from the banks of streams which have eroded their way through the soft earth covering recently have added another chapter to the ancient life history of the Pacific Coast in the vicinity of San Francisco Bay. The cones and logs are probably all of ten thousand years old and were found by Dr. Ralph W. Chaney of the Department of Paleontology and H. L. Mason of the Botany Department of the University of California in the low hills on the western side of the bay in San Mateo County. The find links this section of California up prehistorically with the islands off the mainland of the coast near Santa Barbara. The cones and wood are of the Douglas fir and Monterey pine and show that back in the upper Pleistocene period the bay area was thickly wooded, but through some at present unexplainable circumstance old Mother Nature made a shift in her plans and the bay district hills assumed their present appearance.

According to Dr. Chaney, the finding of the Montery pine tree fossils in the local sands is of exceeding interest, as it is a tree to-day found only in the vicinity of Monterey County and the Santa Lucia range, an extremely limited habitat. - From D-5 News Letter.

NEW PURCHASE OF NATIONAL FOREST LANDS

The National Forest Reservation Commission at a meeting held December 7 authorized the purchase of 78,797 acres of land in the eastern United States at an average price of $16.62 per acre and aggregating $1,312,434.50. This land contains a very large amount of highly valuable timber. The most important tracts were in the White Mountains of New England, aggregating 22,672 acres in Grafton and Carroll counties, New Hampshire. The largest and most valuable parcel within the white Mountain lands consisted of 22,539 acres in the town of Waterville, Grafton County, embracing the Mad River Notch, Greeley Ponds, and some of the most scenic areas in the southern portion of the White Mountains. There is being acquired with this tract merchantable timber to an aggregate value of more than one million dollars. The Government plans ultimately to resell 85 per cent of this timber.

In Arkansas the purchase of 40,294 acres was authorized at an average price of $2.87 an acre; in Tennessee 1,905 acres of mountain land in Sullivan, Unicoi, Monroe, and Polk counties; in North Carolina 1,483 acres in Macon and Swain counties; in Pennsylvania 6,141 acres in McKean, Forest, and Warren counties; in West Virginia 57 acres in Pendleton county; in the Lake States 4,720 acres at a price of $1.00 an acre in Oscoda, Ogemaw, Alcona, and Iosco counties, Michigan.

This action by the Commission increases the total area being acquired for eastern National Forests to 2,971,538 acres.

NEARLY QUARTER CENTURY WITH SERVICE

Neil Erickson, Forest Ranger on the Coconino, at his own request, will be put on the retired list on December 9th after completing twenty four and a half years of active duty with the Forest Service. Mr. Erickson entered the service in 1903 on the Chiricahua, now the Coronado, serving there until 1921 when he transferred to the Cocomino as custodian of the Walnut Canyon National Monument. Mr. Erickson is a pioneer in the Southwest, coming here in 1881 from Boston, Mass., at the time of his enlistment in the 4th U. S. Cavalry. He served for five years in four campaigns with the forces of Generals Crook and Miles during the stirring times of the depredations and capture of Chiefs Loco, Chato, and Geronimo, reaching the grade of 1st Sergeant of Troop E. In 1886 after his period of army service he settled on a ranch on the slopes of the Chiricahuas and has since maintained the place as the family home spending the winters there during the past six years. Mr. Erickson has a long record of faithful service, outstanding loyalty to the Forest Service and its ideals, and a record of successful contacts with the residents of his former district, the Dragoon-Whetstone on the Coronado, and with many thousands of visitors during the past six years at Walnut Canyon. The District wishes him many years of happy life and activity in the scenes of his early days when he picked out a ranch in the midst of the country he helped so materially to win for civilization. - District 3.

VACANT PUBLIC LANDS

Circular No. 1131 issued by the General Land Office gives the area and location of vacant public lands in the different States as of July 1, 1927. Those who expected that the remaining vacant public lands would all be passed to private ownership under the stockraising homestead law will be suprized to see that the area of public land is now reported to be about seven million acres more than on July 1, 1924. On the latter date the vacant public lands amounted to a total of 186,604,733 acres, while the area of public land reported July 1, 1927, is given as 193,737,588 acres.

While the total area of public lands shows an increase there is on the other hand a decrease in the area embraced in unperfected entries. On July 1, 1924, the General Land Office reported a total of 108,048 unprefected entries, embracing a total acreage of 30,239,059 acres. The number reported on July 1, 1927, is 80,832, embracing a total area of 28,028,292 acres.

It is also of interest to note that the area of public land remaining undisposed of in each of the following States, which were included in the 1924 report, is so diminished that they are no longer included in the recapitulation by States: Alabama, Kansas, Louisiana, Michigan, Mississippi, and Wisconsin. The boom in Florida real estate is reflected in a reduction of vacant public lands from a total of 79,606 acres July 1, 1924, to a remnant of 13,862 acres July 1, 1927.

NATURE NOTE

While on the west side of the Santa Rita Division of the Coronado recently Asst. Supervisor Anderson and Ranger Olson found on a 640 acre homestead, a Mexican family that had taken a nest of Gamble quail when quite small and raised them in the house. The quail numbering eleven are now full-grown and forage quite a distance from the house but come when called just like chickens. They still roost inside the house in a basket hung from the rafters, and are so tame that members of the family can pick them up without their showing any signs of fear, or uttering any protest. It is not uncommon to find at outlying ranches quail that have become tame enough to feed with the domestic poultry, but this is the first instance where they have been known to share the only room of the home with the family. - District 3.

A PEEP INTO THE FUTURE

Supervisor G. B. Mains told the ranger conference at Cascade that the time is coming when the Forest Service will organize against insect infestation the same as against fire.

The bug epidemic covering thousands of acres on the central Idaho Forests the past few years will increase the forest fire hazard tremendously. Dry needles left on the trees killed by insects will crown very easily. The infestation which kills practically all of the mature lodgepole trees has more than doubled the last two years and is still spreading. - D-4 Daily News.

Careless smokers, by tossing their cigaretts, cigar stubs and matches into dry grass or other highly inflammable material, were responsible for more than 36 per cent of the fires that State rangers were required to stamp out during the fire season just ended, according to State Forester M. B. Pratt's annual report on fire causes. - From D-5 News Letter.

THE FOREST CLERK AND FIELD WORK

By Carl H. Goepfarth, Rio Grande.

For short periods within the past two years, the writer has had an opportunity to spend some time on a Ranger District doing strictly field work. In one instance it was on a timber survey, assisting in the establishment of controls; in another, assistance was given on the heavy end of an increment borer. The direct and indirect benefits have been sufficient, in my opinion, to justify the time and expense involved.

There are probably no Forests where an opportunity is not presented for the Senior Clerk to absent himself from the office for a few days field work, and from my viewpoint I would recommend that my fellow clerks in the Service take a trip of this sort, if the Supervisor is willing, and prove to themselves that it is worth while.

It is then that the clerk digs out his flannel shirt, leather vest, boots, and what not, and disappears into the tall and uncut. The change from swivel chair and rubber stamps to saddle and timber brings out a few aches and a glorious appetite - but it is worth it.

As to the benefits. The clerk secures a better appreciation and understanding of the field work. Before, his knowledge has been superficial. He knows an increment borer by name, but does not know how it is used. Reports along such lines represent so much dull and mechanical tabulating work. However, after having done the work and knowing the where and why of it, it assumes a new aspect.

With some experience, the possibility exists wherein he may be of value as a reserve man on the Forest. At least he will be available for various jobs where intensive experience and knowledge are not required. It is not expected that he become as efficient in the field work as the average ranger, but he could be of help.

And there are other advantages having no direct bearing on the work. After living in Colorado for over five years, there were a number of trees, shrubs, flowers and grasses that are quite common, and that I could not identify. On a recent trip, the Forest Examiner on the trail home spent possibly fifteen minutes pointing out to me the characteristics of them, and during this short period I learned more than I did during my whole stay in the State. This may not help a clerk on a voucher returned, but it is surprising what questions a clerk is sometimes called upon by the general public to answer - D-4 Daily News.

ROAD AND TRAIL EXPENDITURES

By G. H. Lautz, Washington.

The cooperation thus far furnished by interested States and Counties containing National Forests amounts to approximately one fourth of the amount appropriated from federal funds. Oregon contributed the largest amount with $5,059,540, while the second was California with a considerably less amount, $3,075,678. Idaho Forests have had the largest amount of federal funds expended within the State for Forest roads and trails totaling $9,491,792. California is second with an expenditure of $9,058,748 and Oregon third with $8,765,977.

The three States which show the largest mileage of roads completed to July 1 are Oregon with 2,098.8 miles, Idaho with 1,672.8 miles, and California with 1,285.9 miles.

The largest trail mileage which has been completed is found in Idaho, which was 6,011.4. Colorado and Oregon follow next with 3,309.7 and 3,218.8 miles, respectively. During the fiscal year 1927, Oregon completed the largest mileage of roads 226.0 while Idaho completed the largest amount of trails 978.5.

The total expenditures of $79,601,463.59 was used not only for the construction of roads and trails but also for their maintenance. Oregon maintained the largest mileage of roads, these being 3,461.4 while Idaho maintained the largest mileage of trails totaling 8,709.7 miles.

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WHAT SHALL WE DO WITH OUR MOUNTAINS?

(Excerpts from an article by W. B. Greeley in Sunset Magazine for December, 1927)

"Our national development has always had a background, or setting, of forest and frontier. It has been a powerful social and moral influence. It has given the American people physical vigor, resourcefulness, and stamina. It has created many cherished traditions and national heroes. The conquest of the wilderness has probably been the greatest single factor in molding our sturdier national qualities since the colonists landed on the Atlantic Coast.

"But now the question becomes, how completely do we want to conquer the wilderness? How far can we afford to go in effacing its sources of virility and its influence upon the thoughts and aspirations of men? As urban populations multiply and living hits a faster pace, as more and more people are drawn, willy-nilly, into artificial and mechanical modes of life for the bulk of their days, all the more vital becomes the restoring and preserving influence of our mountains and forests. The frontier has long ceased to be a barrier to civilization. The question is rather how much of it should be kept to preserve our civilization.

"Many people living in the West do not realize how rapidly the character of our western mountain ranges has changed during the last twenty years. The frontier is constantly being pushed back. In part this is due to the inevitable inroads of exploitation or development for economic requirements, like the cutting of timber and the building of reservoirs. To a much larger degree it has resulted from the construction of highways and the tremendous expansion of motorized recreation. Thanks to the gasoline motor and the demand for highways which it has created, the American people have rediscovered and repossessed their outer spaces. A constantly rising tide of motor-propelled recreation seekers is pouring back into the Sierras and Cascades every summer. And it constantly is seeking fresh fields of conquest. It is reaching out now for the summits of the highest peaks. Mt. Hood, Mt. Whitney, the high Sierras are in the line of march." ****

"It would of course be futile to attempt to say what should be done with our mountains in general or inflexible terms. Mt. Washington, the outstanding peak of New England, long ago succumbed to a cog railroad. Pikes Peak has yielded to the highway and motor car. Roads are being built to other western summits. Doubtless as time goes on and we learn how to balance all of these considerations, motor roads or cableways to still more mountain lookouts will receive public sanction. My principal plea is to move slowly in such invasions of the mountain wilderness, to weigh carefully all of the elements of human service involved, and to make sure that what we lose by such developments will not offset what we gain. Today we are in the flood tide of the motor age. It threatens to sweep everything before it, to recognize no limits. The danger right now is that the West will move too fast and go too far in obliterating its wilderness and reducing its majestic mountains to commonplace things. I am not arguing so much for a particular verdict in this or that particular instance as for a serious appreciation of the problem as a whole. We will have precious little wilderness left if we leave things to take their own course. We will retain it only to the degree that we deliberately weigh its value, plan for its preservation, and protect it with alert public opinion.

ATTRACTIVE LIFE OF THE FOREST RANGER

Nothing Like This Work For The Man Who Wants To Get Near To Nature's Heart

By Frank C. W. Pooler, D. 3.

Denver, Colo., Oct. 15, 1903: For the young man who loves outdoor life, there is hardly any employment which offers better inducements than that of ranger in one of the great forest reserves of the West. The government has devoted much attention to the problem of protecting its forests and the wild game therein, and it offers fascinating employment to young men who know something of woodcraft and who are willing to dwell alone in the wilderness the greater part of the year. The position of forest ranger has its drawbacks as well as its advantages. The ranger is often called upon to fight the forest fire for days at a time, and again he may come in conflict with poachers on government land - desperate men who are not inclined to parley with anything but the rifle or revolver. He may be snowbound for weeks and months at a time, with no companion but his pony, or perhaps some tiny squirrels or other wild animals which he has coaxed to his cabin, and with which he has struck up a companionship. On the other hand, there is no individual who has a better opportunity of enjoying the wild, free life of the wilderness, of studying animals in their native haunts, of learning the secrets of that never ending book of the forest, of whipping ideal trout streams and of spending pleasant hours in pursuit of game, either with the camera or the rifle.

The forest ranger is not held to certain hours of labor as strictly as the government employe who labors in an office and who registers his arriving and departing time on a clock. He is practically his own master, sending written reports to his superiors and sometimes going weeks without seeing another employe of the government. He is furnished with comfortable quarters, usually a rustic cabin in an ideal retreat, and he has the use of a pony. His salary may not be large, but there is little opportunity for spending money, and as a result he may save more in a year's time than a city employe who draws twice as large a figure from the Government Treasury.

The work of a forest ranger in a reserve like that adjoining the Yellowstone is sufficiently varied to keep him from feeling any touch of ennui. The ranger's day usually begins at sun up, for the men of the West are not a slothful breed and are generally astir at dawn. The ranger turns out of his comfortable bunk, or mayhap rises from the bed which he has made at his cabin doorstep outdoors. Although the nights in midsummer are cold even to the point of freezing, the ranger, like others inured to western life, prefers plenty of fresh air, and consequently, half of the time he rolls into his blankets out of doors and pulls his tarpaulin over his head, choosing to sleep that way rather than in his well aired cabin. Sometimes he will find an inch of snow over his tarpaulin when he awakes. Naturally, in the winter time, the ranger sticks to his cabin, however. But for nine months of the year he practically sleeps as well as works out of doors.

After turning out, the ranger proceeds to get his breakfast on the little air-tight stove in the centre of the room. His experience in the wilderness has versed him in the ways of the "rough and ready cookbook," the recipes of which are carried in the head of every man who has lived long in the forest. The supplies are always good and his meal of "flap-jacks" or "sour dough" bread is rendered appetizing by steaming coffee and some kind of canned goods. Breakfast over and the dishes washed—for the ranger is scrupulously neat as to his kitchen work— the next task is to find the pony. The hardy, Western ponies, accustomed to "rustling" for their own food, are not always easy to find. In fact, the tender-foot is often made sick at heart when he starts out to round up the horses and finds that they have utterly disappeared from view. The ranger follows the tracks of the hobbled animal, however, being able to distinguish them from any others on the trail. The horse may be only a few rods from the cabin, nibbling at the sparse grass, which is intermingled with sage-brush, or he may be four or five miles up or down the trail. It is all one with the ranger, who is trained to take such things philosophically. When the pony has been saddled and bridled the ranger starts out to hunt for evidences of any newcomers in the reserve. He follows the road for several miles in one direction, and if he can find no evidences of campers or hunters, he doubles over his trail and rides as far in the other direction. If he meets a party, he takes all names and addresses and delivers the customary caution regarding the shooting of game in the reserve contrary to the laws of the United States Government and of the State itself. Sometimes he will follow a party for miles and come upon them in some obscure camping place. Occasionally he will take to a side trail, nothing more than a slight path leading from the main road, and will "round up" hunters who may be penetrating the heart of the wilderness. The government reserves are, of course, subject to the laws of the State regarding hunting and fishing. Consequently in the game season the ranger must be constantly on the alert. The temptation to shoot is strong in most men when there is game to be killed, and the records of a court in Wyoming show where a State warden recently pleaded guilty to killing a song bird and was fined. There was no complainant in the case save the warden himself, who had broken the laws on the impulse of the moment, and he then had himself fined as a matter of conscience. Campers sometimes take sly shots at game, in the hope that the reports of their weapons will not reach the ears of a ranger. It is dangerous to take such chances, however, as the rangers are always angry when they find they have been trifled with. If the offenders have been previously warned, and have shot regardless of such warning, the ranger will confiscate their weapons. Or, if he deems further punishment necessary, he may complain to the nearest court and have the offenders punished by State law.

THE 1904 FOREST RANGER.

The foregoing article from a Sunday supplement of the New York Times, or Tribune, of October 1903, supported as it was by an attractive illustration of a mounted Forest Ranger booted and spurred, was the direct cause of my coming into the Service, which was accomplished in March, 1904 as third-class Ranger in charge of the Crown King District of the Prescott National Forest, which made me a full-fledged member of the Forest Reserve Service of the General Land Office

My district headquarters were left to my own choosing. Information as to the business of the district was to be supplied by my immediate predecessor who had left the Service under a cloud. My official equipment, consisting of a badly gummed four-foot scale stick, a battered marking hatchet, a garden rake, a round shiny badge the size of a coffee cup, and a little red book of instructions, was turned over to me and I faced the realities of the advertised job among which was the problem of providing my own quarters and keeping myself and two horses, without pasturage, on $60 a month.

At that time we were not in the classified Civil Service. Supervisors received a small fixed sum per day and some of them opened their mail and offices Sundays which gave them an additional day's pay each week

There were no travelling expenses, Supervisors rented their own offices, supplied their own office furniture, and if they absolutely had to have stenographic help, paid for it themselves. No appropriation for improvements was passed until sometime after the transfer of the National Forests (they were then called Forest Reserves) to the Forest Service in 1905. Consequently there were not until later any Government-owned quarters for Rangers, pastures, phone lines, roads or trails. We took the country as we found it, lived in tents or what-not (my first three winters in Arizona were spent in a tent) and in the best way we knew how attempted to prevent trespass, keep down fires, and administer going timber sales, which at that time were the only branches of administrative work given special attention.

Grazing was handled under permits issued by the Supervisors free of charge. No special attention was paid to the permit phase of the business by the Ranger. Some farsighted individuals with small numbers of stock held large permits and shortsighted individuals with large numbers small ones. Being on a free basis it made little difference whether a man's permit was large or small so long as he had one, and about the only supervision grazing received was that sheep and goats were religiously kept off of the exclusive cattle ranges and a strong effort was made to keep transient sheep from Utah and elsewhere outside National Forest boundaries.

Timber work was handicapped by procedural difficulties. Every timber sale required 90 days' advertisement and approval by the Commissioner of the General Land Office, so that it took at least six months to get even a small sale through. The issuance of free use permits, however, was within the Supervisor's authority and much legitimate small sales business was handled under free use instead, to avoid procedural sales delays.

Lands work consisted largely of patrolling and posting boundaries and submitting final proof reports on old homesteads and reports on mining claims for which patent had been applied. There was no recognized Uses business. We adversely reported on occupancy for saloon purposes (and there were some twenty odd saloons on my district in various mining camps) except where patented land was involved. Periodically these saloon operators were given written notices to vacate which they promptly posted on the walls or otherwise added to their collection and blandly ignored. Other occupancy was entirely overlooked. The forests were full of squatters, and it was not until June 11, 1906 that the Forest Homestead Act was passed, so there was no so-called settlement work. Rangers had no district status to keep and consequently had but a hazy and very personal knowledge of land ownership in their respective districts.

Fires were fought largely with drafted or volunteered help. My first serious fire was on a tinder dry chaparral slope. In response to my request for funds for the employment of fire fighters, I was told there were none such and to put the fire out as best I could. This resulted in a demand on the responsible mining company for a crew which was met by reluctant authorization to go out and employ men at their expense - a rather difficult thing to do as the company was not paying its employees regularly at the time. But the fire fighters were finally secured and the fire controlled with a loss of considerable wearing apparel on the part of all hands, for we fought it on steep slopes with borrowed axes and shovels oblivious to the existence of a usable trail a few hundred feet above us. During my entire service as a Ranger, no Government money was expended for fire fighters on my district in spite of the suppression of many fires in the drouth season, railroad sectionmen, stockmen and settlers, to say nothing of mining employees, being relied upon exclusively for help. It was not until years afterward that the lookout and protraction system of detecting and locating fires was adopted, and this started first with the use of selected trees for temporary observation purposes. Fire fighting was an unknown art just as range management had never been thought of. But we burned our piled timber-sale brush when we dared which, after all, was not very often.

Periodic reports consisted of the monthly service report on a large atlas sized sheet, which brought our pay checks from Washington a month to six weeks later, and monthly or semi-monthly timber cutting reports. We had no leave slips to bother with because we had no leave, annual or sick. The old Smith-Premier double keyboard typewriter in the Supervisor's office was only put into action when Ranger (now Assistant Forester) Kneipp happened to be under sentence there. We kept no elaborate files for obvious reasons. What files the Supervisor needed to supplement his press copy-books were in cardboard filing cases few in number.

My immediate predecessor as Ranger on the Crown King District owned or operated a store, restaurant, rooming-house, and blacksmith shop at the end of his six months' term of service and patrolled his district, as the term then was pretty largely in accord with the demands of his outstanding pack and mail contracts. His predecessor occupied his brief period of service largely in the capacity of waiter in a mine restaurant and his predecessor did nothing at all. With this background some Public Relations work was necessary to establish the Service in the good graces of the community, and while this may have been an extreme case, Forest officers of that day and age had usually a big job ahead of them to start with in gaining the confidence of the local people and in living down the arbitrary acts of predecessors.

I could enumerate many humorous and other incidents of a somewhat brief but extremely active and interesting Ranger service spent almost entirely in the saddle but that would be beyond the scope of this article which is intended only to picture, for comparative purposes, the beginning of things in National Forest administration as I recall them.

When one considers our far-flung protection and administrative improvement system; the range improvement facilities, public and private; and the roads, trails, and telephones of the present day, to say nothing of the compiled technical experience along various lines; when one observes the new blanket of forest reproduction coming in as a result of fire protection and better range management as contrasted with conditions obtaining in the Southwest in most localities twenty odd years ago; and when one considers the standing of the Forest Service and its officers in the estimation of the West in 1927 as compared with a quarter of a century ago, one can not but be deeply impressed and both optimistic and curious as to what the coming quarter century will bring. There is no room for discouragement in the picture presented. The high, wide, and handsome days are past, it is true. Rangers are no longer free-lances insofar as fundamental policies are concerned and strictly on their own so to speak. But the Forest Ranger of today is still one of the most independent of men, still largely his own boss, and with a world of opportunity for individual expression, individual effort, and individual recognition. His is a highly respected and useful life. - From "The Forest Pioneer", D. 3.

CHRISTMAS TREES

The following letter from the Denver Chamber of Commerce has gone to the President of each woman's club in Denver, thus reaching about 6,000 women; also to every Service Club, as well as to every Scout Master and to the Highlander Boys.

"There is a school of thought which contends that the use of Christmas trees should be summarily prohibited; upon the argument that our forests are being denuded. Such drastic action is entirely unnecessary; provided, however, that proper forest practices are carried out. If such practices are engaged in the thinning out of Christmas trees and boughs is distinctly beneficial to the forest.

"The Forestry Committee of the Denver Chamber of Commerce has just completed an extensive campaign in our mountain areas for the purpose of education in proper forestry practices so that the forest growth may not only be conserved but increased.

"The practice of 'tagging' Christmas

trees is for the purpose of discouraging indiscriminate or unwise cutting. The tags are issued by both the Denver Park Department and the U. S. Forest Service. They are issued to those who are cutting wisely and not slaughtering the forest growth. The tags are also issued for the purpose of discouraging the sale of contraband trees; i. e., trees that have been cut illegally.

"Another aspect of the question is that only about one tree out of fifty is a 'perfect' tree. Obviously, if we insist on perfect specimens thousands of imperfect trees which are offered for sale will be wasted. The tree that is thin on one side really fits better in a corner or against the wall than does a symmetrical tree, or two trees that are thin on one side can be wired together to make a very satisfactory 'perfect' tree, at a less cost than a perfect, symmetrical tree.

"We commend to the attention of your club, therefore, and urge strongly that "YOU PURCHASE ONLY TREES THAT ARE 'TAGGED' WITH AN OFFICIAL U. S. FOREST SERVICE OR A CITY OF DENVER TAG, and that YOU GIVE SERIOUS THOUGHT TO PURCHASING THE IMPORTANT AND CHEAPER TREE.

"If the mountain land owner, the city administration, the tree sales people, and the consumers of Christmas trees will engage in an endeavor of mutual cooperation, our supply of Christmas trees will not only endure for all time but will actually increase to take care of eastern communities less favorably located than Denver. If this cooperation is not forthcoming the next ten years will bring about the necessity for stringent regulation and possible complete prohibition of the use of the beautiful and symbolic Christmas tree."

A NEW PLAN FOR COMBATING FOREST FIRES

A Suggestion from the Moving Picture Colony of California

"Briefly the plan embraces the use of artillery, howitzers, mobile mortars and hand grenades for throwing fire extinguishing chemicals into the burning area. Strategic lines of defense permanently laid out, with fixed batteries mounted and ammunition dumps located close by would provide equipment always in readiness for action. Batteries located at high points in the mountains, giving a wide field of fire, with ranges to all points previously computed and charted, could be put into action within a few minutes from the time the blaze was discovered.

"I understand that there is an abundance of war equipment that might be made available for use in connection with such a plan. A means of supplementing the artillery would be the use of hand grenades by units of fire-fighters for close-in work and final mopping up.

"In this connection, I have made experiments myself with a rather crudely constructed hand grenade carrying a small charge of explosive releasing fluid taken from Pyrene extinguishers. Six of these grenades were used on a brush blaze in the foothills near Hollywood with surprisingly effective results. If such is the case on a small scale, I believe that proportionately good results could be had by using artillery and mobile howitzers.

"Cooperation of branches of the army and national guard might be secured even to the extent of handling the guns. It would afford training approaching actual war conditions.

"I am not going into detail with the idea because I believe the suggestion will either recommend itself or not, realizing that perhaps considerable legislation would be necessary before the plan could be put into effect. However, I do believe that it would be worth a certain amount of experimentation by the forestry department, which might be done in cooperation with the regular army."

HAITI WANTS FORESTER

The Director General of the Technical Service of the Dept. of Agriculture of the Republic of Haiti has asked the Forester for recommendation of suitable men for the position of Director of Forestry, which position is likely to become vacant within the next 6 or 8 months. The Director General states that

"The Service Technique of the Department of Agriculture of the Republic of Haiti is an organization under the treaty between the United States and Haiti which provides for the employment of a certain number of American technicians and other experts who shall assist in the organization and development of certain Haitian Governmental organizations, particularly those which have regard to the improvement of the health, police regulations, and agricultural and industrial conditions of the country. To this effect there have been organized, under American supervision, certain departments such as those of Public Works, Public Health, and the Department of Agricultural and Professional Education. The Division of Silviculture is a part of the latter organization. We have for next year an appropriation amounting to $35,000 from which to pay a forester and run the department. We shall be able to offer a salary of $5,500.

While we would prefer to have a man experienced in tropical botany and forestry, these are not of primary importance, because a man well grounded in botany will make himself acquainted with our forest trees in a comparatively short time. It is more important that he be well trained and experienced in the organization of national forests and in the administration of these organizations, and that if possible he be able to speak French."

It is understood that while the position will probably not be vacated for 6 or 8 months, it is desirable to have the new man on the ground for a considerable period before formally taking over the work, in order that he may become thoroughly familiar with it before the present incumbent leaves. The Forester's office wishes to know at the earliest possible date of any qualified Forest officers who desire to be considered for this place.

JOE CAMPBELL PASSES AWAY SUDDENLY

Joseph K. Campbell, inspector of grazing in the Forest Service from 1907 to 1912, died on November 20 at his home near Prescott, Arizona.

Campbell was originally attached to the Washington office as general inspector. When the Districts were formed in 1908 he was made Chief of Grazing in District 3, with headquarters at Albuquerque. After his retirement from the Service in 1911 he engaged in the cattle business with his brother, who was at that time Governor of Arizona.

During the war he was appointed as an inspector of the Bureau of Markets, in charge of stockyards inspection work at several of the large western stockyards centers. At the close of the war he again resigned from the Government service, and at the time of his death was engaged in the cattle business near Prescott, and also was inspector for the Arizona Cattle Sanitary Board. - W. C. B.

PIGEONS FOR FIRE MESSAGES

By W. J. Sproat, Crater.

Supervisor Nash-Boulden of the San Bernardino brings up (in the Service Bulletin of Oct. 17) the question of homing pigeons.

Now, the use of pigeons to carry messages from fire lines to headquarters was demonstrated a good many years ago to some extent in District 6.

Messages, which pertained to ordering men and supplies, and in one case giving the first location of a fire on forest land that had smoked up sufficiently to be seen from several miles distant, were taken from birds immediately upon their arrival after rapid flights to headquarters.

Three trial flights from forest patrol planes were entirely successful and more than thirty messages were carried from a number of points on the Cascade Divide between Crater Lake and Mt. Jefferson to headquarters. None of these messages pertained to fire, but are mentioned because the birds were subjected to necessarily rough handling and long periods of confinement in temporary camps.

There is not the slightest doubt that this bird will deliver the message in sufficiently short time from the most inaccessible parts of our National Forests to headquarters, providing the bird is of good stock and is correctly handled and trained.

Success depends on a number of intricate cares of handling, such as the loft's position, size, arrangements, and the feeding, training, quantity of stock, etc. To give improper attention to any of the above will result in failure. Birds that have been trained to fly across the state, or the District may be used admirably for carrying over the short air-line distances from forest to forest headquarters.

WASHINGTON VISITOR

James T. Jardine, for many years inspector of grazing in the Forest Service, was a recent visitor to the city of Washington, but stopped hardly long enough to say how-do-you-do to his friends. Jim is now Dean in the Agricultural College at Corvallis, Oregon, in charge of livestock and grazing interests at the college. He was the inventor of our present grazing studies work.

STATE COLLEGE RANGE MANAGEMENT CLASS VISITS JORNADA RANGE

The Range Management class under the direction of Professor C. P. Wilson from the New Mexico A & M College recently spent the better portion of two days on the Jornada Range Reserve. During this time the class was taken in hand by the Jornada personnel and instructed in the application of the methods used in Range Investigations, Reconnaissance, Handling Stock, and The Determination of Carrying Capacity as applied to Southwestern ranges. We are glad to know that these men feel that we have something worthwhile to give them. One of the most encouraging aspects of the work on the Jornada is the constantly increasing number of visitors who are interested in the work that is being done here. - R. H. C., D. 3.

EDUCATING THE CAMPING PUBLIC

An after season inspection of camp grounds on the Big Creek district of the Sierra Forest disclosed about the cleanest camps noted in the District this year. And the cleaning was nearly all done by the campers instead of by Forest officers, as is the custom in much of this District. Ranger Sweeley puts it squarely up to his Guards that they can either help him ride herd on the campers and make them keep the camps clean or do the cleaning up work themselves.

As a consequence every camper is told just what he (or she) must do in the line of camp maintenance, and to do it now, so when the camping season is over the camp grounds are clean and not littered with cans, papers, and all kinds of trash as are many elsewhere.

This is a real education of the camping public which if practiced all over the District would greatly reduce camp ground maintenance work and costs. Why not try this plan next year? L. A. B., D. 5 News Letter.

OUR PENTRATING P. R.

A letter recently received in D-7 reads: "Forest Service: Dear Sirs: I am very much interested in the 'Prevention of Forestry.' Please send me some lititure on the subject. Very truly yours."

WE ARE NOT YET "SOLD"

A shipment of hardware ordered for the Ashley N. F. was sent to N. F. Ashley. - D-4 Daily News.

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Form 172

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